Lyme Bay plaice sampling trip 13-14 March 1999

Confidential Report No. CR159

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Sea Fish Industry Authority

Technology Division

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1. Introduction

According to local sources the Lyme Bay area usually supports a plaice (*Pleuronectes platessa*) fishery through the month of April, exploited by beamers working from Brixham. During the first quarter of this year however, vessels reported significantly larger catches from mid – February through to early March. Following approaches by the SWFPO, CEFAS arranged with Sea Fish Industry Authority for a Discard Officer (DO), to carry out a sampling trip to examine the current plaice catch in the Lyme Bay area.

2. Objectives

1. To gather length-frequency data on plaice currently being caught in the fishery
2. To record the discard rates operating in the fishery
3. To obtain plaice otoliths enabling an age-length key to be established
4. To approximate a plaice catch per unit effort (CPUE) for the trip

3. The vessel

The vessel was a well-found and equipped offshore beamer (metier code U2.2) 28m LOA, powered by an engine rated at 597 kW. Total crew for this trip consisted of 5 crew, including the skipper. Gear was made up of two 11m wheeled beams, fitted with 80mm codend mesh. Port of sale was Brixham.

4. The ground

The plaice fishery is normally located in Lyme Bay, either side of a large area of soft ground, running roughly E-W, considered unsafe for beamers to work. The first three tows were carried out between 16 – 20 miles E of Berry Head, the remaining four approximately 13 miles S, in deeper water on the other side of the soft ground.

5. Method

Once a suitable vessel and departure time had been arranged through the SWFPO, the DO drove to Brixham with equipment suitable for a discard survey, introduced himself to the skipper, owner and crew. The gear was stowed, accommodation arranged and the locations of escape hatches, liferafts, etc., noted.

Once the vessel had arrived on the grounds, the first cycle of fishing operations was observed, from shooting to hauling. This was to ensure that when on deck the DO would not hinder normal fishing operations or be at risk from them.

Sampling

Sampling was carried out using the same methods as on previous discard surveys in north east England in the recent Channel Discard and Effort Surveys 1995-1998. A short description of the method follows:

Following the deposit of the catch on the deck, the DO would take a one-basket sample from one of the codends using random shovel loads. Each beam would be sampled alternately. A member of the deck crew would then sort the catch into 3 groups; retained, discards and trash. The volumes (as fractions of a basket, i.e., 0.6, 0.3 etc.) of each of the groups would then be recorded

The retained fish would then be identified, measured, counted and returned to the crew as quickly as possible for further processing. The discarded fish would undergo the same examination before disposal. Sample details were recorded onto a deck-sheet by the DO (Appendix II). No examination was made of the trash other than a very rough approximation of the main constituents. The crew was then asked for the amount of the total catch retained in baskets. This figure was used for raising the sample to the level of the catch. If time allowed (DOs are not allowed to remain on deck alone) otoliths were taken as required from the discarded plaice.

The skipper (or mate) was asked to record the following details for each haul on the sheet supplied:

Sampled haul number
Haul date
Shooting time
Shooting depth
Hauling time
Hauling depth
Haul latitude
Haul longitude

At the end of the trip the crew were asked for a box tally of the catch to date. Actual landing figures were not available, as the vessel did not discharge the catch after returning the DO to Brixham, but immediately returned to sea to pursue an alternative fishery.

6. Results

Due to time constraints on both sides the sampling was carried out within a 24-hour period. Seven hauls were sampled out of the eight carried out. As noted above, the first haul was not sampled. The results are presented in Tables 1-6 and Figures 1 and 2 in Appendix I.

The first tow was shortened (Table 3) due to a build up of sand in one of the codends, a potentially dangerous situation. Boarding by a Fisheries Protection Vessel shortened the second tow to allow the Navy personnel to measure the mesh size and leave as soon as possible. The third tow suffered codend damage and after this it was decided to move SSW to the other side of the 'soft ground'. A 'typical' tow in this fishery was stated to be around 2 hours long.

As can be seen from the final tally (Table 4) the retained catch consisted almost entirely of plaice. Discards were low, and consisted mainly of undersized plaice, dabs (*Limanda limanda*), lesser-spotted dogfish (*Scyliorhinus canicula* – 'murgies'), dragonets (*Callionymus lyra*) and other occasionally represented species.

The discard rates recorded for plaice during the trip were mainly in the range 20-29.9% or less (Figure 2) with an overall discard rate for plaice of 22% (Table 6 and Figure 1). It should be noted that the totalled % discard rate for plaice discards *over* MLS, show that over half of the sampled discarded plaice were above the legal minimum size.

A very approximate CPUE was obtained by dividing the boxed catch by the total number of hours fished (fishing time calculated from time of shooting to time of hauling, Table 1) giving a figure of 120 kg/fishing hour.

16 pairs of otoliths were taken from discarded plaice in the size ranges:

3 @ 22-22.9
2 @ 24-24.9
6 @ 25-25.9
4 @ 26-26.9
1 @ 27-27.9

These will be sent to CEFAS for examination.

Due to time and lighting constraints it was not possible to sex the plaice as none contained obvious gonads (roes or 'chitlings'). Plaice that were not discarded did not have their otoliths extracted as this would have rendered them un-saleable and the catch was destined for market.

7. Discussion

Although arranged at short notice the trip went well. The skipper and crew were welcoming and helpful, particularly as they had given up a night ashore to enable the sampling to be carried out.

The first three hauls sampled could have been influenced by various events, including the boarding by the Fisheries Protection Vessel. It is difficult to say whether or not this would have had an impact on the sorting of the plaice, as previous discard studies indicate that sorting close to, but consistently above MLS by a significant amount (say > 1cm), often occurs as a form of insurance against prosecution. This is in contrast to 'high grading'; sorting significantly higher than the MLS normally associated with market requirements or quota considerations.

The second set of tows to the south of the soft ground did not suffer from any similar interruptions.

The skipper had been dubious about being able to take significant quantities of plaice as the fishery was thought to have tailed off. By the end of February he considered the fishery had been "hammered", having had an estimated 6-8 beamers working the area regularly. Those boats had now moved to other fisheries as catch rates had declined and quotas become exhausted. He now thought that the plaice sampled may well have been a sign of fish 'still moving in'.

The skipper described this year's plaice fishery as very different from the norm. He stated that instead of beginning in March and continuing through April, the plaice appeared in mid-February in amounts sometimes exceeding 1600 kg/haul. He pointed out that fishing at these catch rates meant that the quota allowance could be caught within 24 hours. Plaice were found in these amounts throughout the area normally fished in the Lyme Bay fishery, including, in the opinion of the skipper, the 'unworkable' soft ground.

Having this density of fish on the grounds could cause problems for the fleet. Most SWFPO vessels were restricted to five tonnes of plaice for the first quarter of the year. The best alternative fishery was probably for sole (*Solea solea*) in the Bristol Channel. Given the opportunity presented by the Lyme Bay fishery it was suggested that a significant proportion of the plaice landed to Brixham market during the quarter could have been from the area.

The provenance of fish has never been a concern of the DO and the point is made here purely anecdotally, having been picked up in conversation.

Acknowledgements

The DO would like to take the opportunity to thank Phil Midgely at the SWFPO, and the owner, skipper and crew for their co-operation and, particularly the hospitality shown to him at sea during a 'lost Saturday night'.

APPENDIX I

Tables and Figures

Table 1 Tow details

Haul date	Haul number	Start time	Start depth	Haul time	Haul depth	Haul lat. N	Haul long. W	Duration
3/13/99	1	1600 hrs	46m	1655 hrs	49m	50.26	2.59	55 min.
3/13/99	2	1705 hrs	50m	1805 hrs	50m	50.24	3.04	60 min.
3/13/99	3	1845 hrs	60m	2030 hrs	60m	50.12	3.7	105 min.
3/13/99	4	2110 hrs	60m	2310 hrs	60m	50.12	3.11	120 min.
3/13/99	5	2325 hrs	60m	0135 hrs	62m	50.12	3.12	120 min.
3/14/99	6	0205 hrs	61m	0405 hrs	62m	50.11	3.11	120 min.
3/14/99	7	0420 hrs	62m	0650 hrs	60m	50.11	3.12	150 min.

Table 2 - Haul details

Haul date	Haul No.	Vol. Sampled	Discards	Retained	Trash
3/13/99	1	1	0.1	0.3	0.6
3/13/99	2	1	0.2	0.4	0.4
3/13/99	3	1	0.2	0.5	0.3
3/13/99	4	1	0.1	0.5	0.4
3/13/99	5	1	0.2	0.6	0.2
3/14/99	6	1	0.2	0.6	0.2
3/14/99	7	1	0.1	0.5	0.4

Table 3 - Comments by haul

Haul date	Haul No.	Comments
3/13/99	1	Day. Gear hauled early after 'sanding up'.
3/13/99	2	Day. Boarded by Navy. Short tow allows them to measure codend mesh.
3/13/99	3	Night. Rip in unsampled side.
3/13/99	4	Night. Moved SSW before shooting after tow 3
3/13/99	5	Night.
3/14/99	6	Dawn.
3/14/99	7	Daylight.

Table 4 - Retained catch (after 8 hauls)

Species	Boxes (approx. 35 kilo)
Plaice (*Pleuronectes platessa*)	42
Pout (*Trisopterus luscus*)	2
Sole (*Solea solea*)	0.5
Cod (Gadus morhua)	0.75

Table 5 - Plaice catch length-frequencies

Haul No.	Retained/ Discarded	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Fish retained *(4st baskets)*
1	Retained													2	2	1	4	2	5	2	2		1	3				6
	Discarded								1	1	2	3		1	1													
	(per 4st basket)																											
2	Retained										1			4	6	1	8	4	6	1	3	1	1	2				5
	Discarded						1		1	1		1	1															
	(per 4st basket)																											
3	Retained												4	6	5	6	1	8	4	5			2					12
	Discarded				1			1	1	4	2	4	1	2														
	(per 4st basket)																											
4	Retained													2	5	4	2	8	4	6	2	1						12
	Discarded											2		1														
	(per 4st basket)																											
5	Retained														6	2	9	5	6	6	2	1	1	1	1			14
	Discarded								2		1	4	3	1	1													
	(per 4st basket)																											
6	Retained												1	1	7	8	4	10	5	5	2	2	1	1				14
	Discarded									2	3		2	2	2													
	(per 4st basket)																											
7	Retained												2	8	7	4	6	8	4	2	6	3			1			20
	Discarded						1		3	1	4	7	3															
	(per 4st basket)																											

Table 6 - Raised data: discard rate percentages

Haul No.	Retained/ Discarded	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Total	%
1	Retained	0	0	0	0	0	0	0	0	0	0	0	0	12	12	6	24	12	30	12	12	0	6	18	0	0	0	144	**72.7**
	Discarded	0	0	0	0	0	0	0	6	6	12	18	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	54	**27.3**
	...above MLS											18	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	30	**15.2**
2	Retained	0	0	0	0	0	0	0	0	0	5	0	0	20	30	5	40	20	30	5	15	5	5	10	0	0	0	190	**88.4**
	Discarded	0	0	0	0	0	5	0	5	5	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	**11.6**
	...above MLS											5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	**4.7**
3	Retained	0	0	0	0	0	0	0	0	0	0	0	48	72	60	72	12	96	48	60	0	0	24	0	0	0	0	492	**71.9**
	Discarded	0	0	0	12	0	0	12	12	48	24	48	12	24	0	0	0	0	0	0	0	0	0	0	0	0	0	192	**28.1**
	...above MLS											48	12	24	0	0	0	0	0	0	0	0	0	0	0	0	0	84	**12.3**
4	Retained	0	0	0	0	0	0	0	0	0	0	0	0	24	60	48	24	96	48	72	24	12	0	0	0	0	0	408	**91.9**
	Discarded	0	0	0	0	0	0	0	0	0	0	24	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	36	**8.1**
	...above MLS											24	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	36	**8.1**
5	Retained	0	0	0	0	0	0	0	0	0	0	0	0	0	84	28	126	70	84	84	28	14	14	14	14	0	0	560	**76.9**
	Discarded	0	0	0	0	0	0	0	28	0	14	56	42	14	14	0	0	0	0	0	0	0	0	0	0	0	0	168	**23.1**
	...above MLS											56	42	14	14	0	0	0	0	0	0	0	0	0	0	0	0	126	**17.3**
6	Retained	0	0	0	0	0	0	0	0	0	0	0	14	14	98	112	56	140	70	70	28	28	14	14	0	0	0	658	**81.0**
	Discarded	0	0	0	0	0	0	0	0	28	42	0	28	28	28	0	0	0	0	0	0	0	0	0	0	0	0	154	**19.0**
	...above MLS											0	28	28	28	0	0	0	0	0	0	0	0	0	0	0	0	84	**10.3**
7	Retained	0	0	0	0	0	0	0	0	0	0	0	40	160	140	80	120	160	80	40	120	60	0	0	20	0	0	1020	**72.9**
	Discarded	0	0	0	0	0	20	0	60	20	80	140	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	380	**27.1**
	...above MLS											140	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	**14.3**
Trip		**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**Total**	**%**
	Retained	0	0	0	0	0	0	0	0	0	5	0	102	302	484	351	402	594	390	343	227	119	63	56	34	0	0	3472	**77.5**
	Discarded	0	0	0	12	0	25	12	111	107	172	291	147	84	48	0	0	0	0	0	0	0	0	0	0	0	0	1009	**22.5**
	...above MLS											291	147	84	48	0	0	0	0	0	0	0	0	0	0	0	0	570	**12.7**

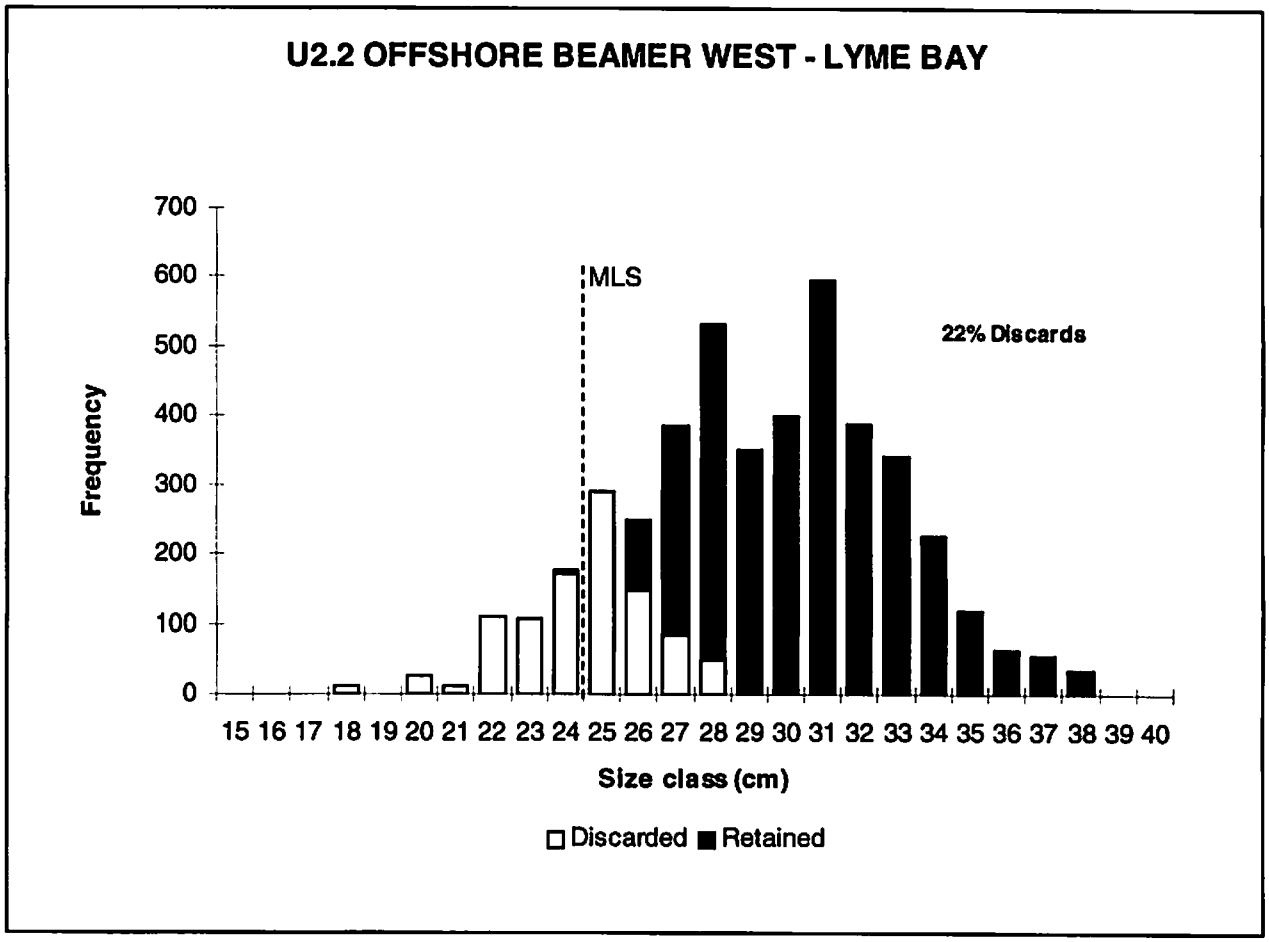

Figure 1 - Raised length-frequency distributions for sampled plaice

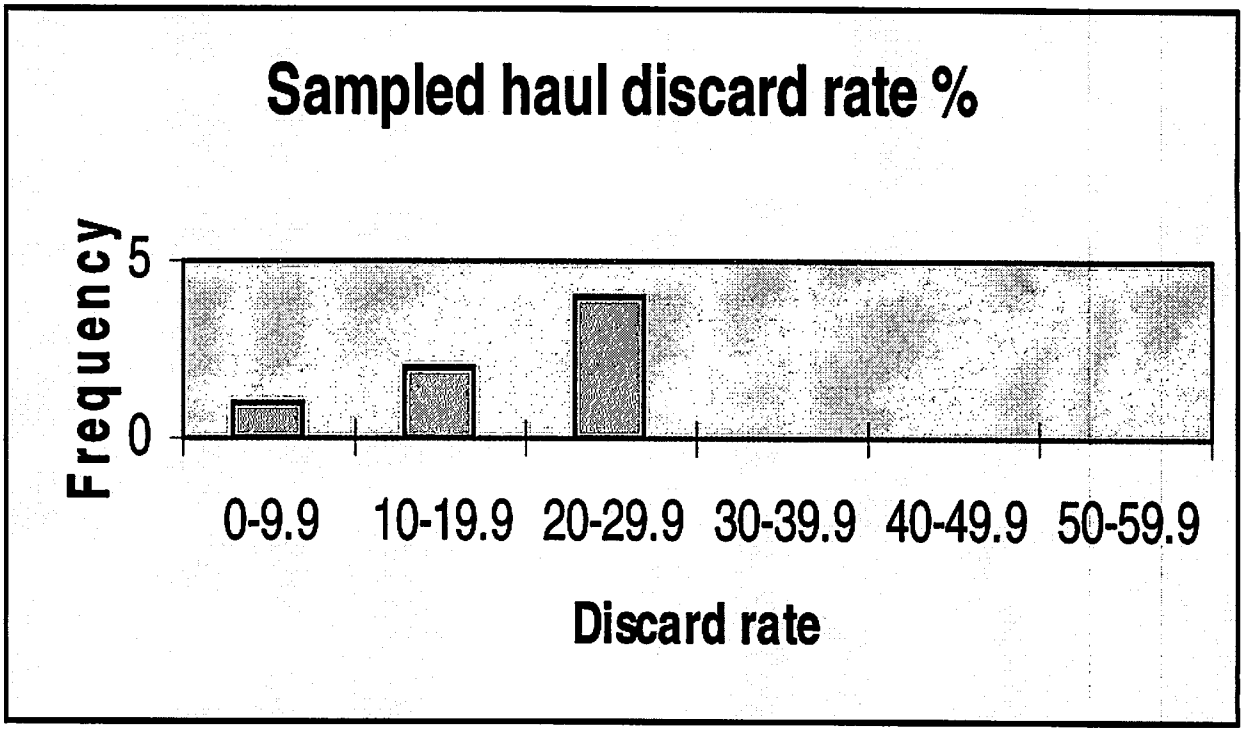

Figure 2 - Discard rate percentages for the sampled hauls

APPENDIX II

Sample deck-sheets

TRIP	HAUL NO.	COMMENTS:
78	7	NIGHT

SDATE	STIME	S. DEPTH (FTM)	HDATE	HTIME	HLAT	HLONG	H E/W	HDEPTH (FTM)
14-3-99			14-3-99				W	

Fish Ret.(Bskt)	Vol. Sampled (Bskt)	Result. Discards	Result. Retained	Result. Trash (tot.)	Trash 1	Trash 2	Trash 3
(20) 10	1	.1	.5	.4	[illegible]	[illegible]	

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
PE	R																				2	8	7	4	6	8	4	2	6	3			1																				
	D														1		3	1	4	7	3																																
COT	R			0																																																	
	D								1				1																																								
[illegible]X	R																				1																																
	D			0																																																	

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
SQC	R											1																																									
	D			0																																																	
SD	R																																																	1		
	D																																																				
PC	R																																																			
	D											1				1			1	1			1																														

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
AR	R			0																																																	
	D									1																																									
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
	R																																																				
	D																																																				
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
	R																																																				
	D																																																				
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
	R																																																			
	D																																																				

TRIP	HAUL NO.	COMMENT
78	6	NIGHT

SDATE	STIME	S. DEPTH (FTM)	HDATE	HTIME	HLAT	HLONG	H E/W	HDEPTH (FTM)
14.3.99			14-3-99				W	

Fish Ret.(Bskt)	Vol. Sampled (Bskt)	Result. Discard	Result. Retained	Result. Trash (tot.)	Trash 1	Trash 2	Trash 3
(14) 7	1	.7	.6	.2	STA	HER	WLK

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18
PLE	R												
	D												
BIB	R												
	D										1		
ISD	R			0									
	D												
SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18
DAB	R			0									
	D										1		
SGY	R												
	D			0									
	R												
	D												
SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18
	R												
	D												
	R												
	D												
	R												
	D												
SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18
	R												
	D												
	R												
	D												
	R												
	D												
SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18
	R												
	D												

SPEC	DISC	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	62	[illegible]
PLE	R							1	1	~~7~~	8	4	10	5	5	2	2	1	1																					
	D				2	3		2	2	2																														
BIB	R				1	2	1			2	1		1																											
	D																																							
ISD	R																																				1	1	1	
	D																																							
SPEC	DISC	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
DAB	R																																							
	D			1		2	2																																	
SGY	R				1																																			
	D																																							
	R																																							
	D																																							
SPEC	DISC	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
	R																																							
	D																																							
	R																																							
	D																																							
	R																																							
	D																																							
SPEC	DISC	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
	R																																							
	D																																							
	R																																							
	D																																							
	R																																							
	D																																							
SPEC	DISC	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
	R																																							
	D																																							

TRIP	HAUL NO.	COMMENTS:
[illegible]	5	[illegible]

SDATE	STIME	S. DEPTH (FTM)	HDATE	HTIME	HLAT	HLONG	H E/W	HDEPTH (FTM)
[illegible]			14-99				W	

Fish Ret.(Bskt)	Vol. Sampled (Bskt)	Result. Discards	Result. Retained	Result. Trash (tot.)	Trash 1	Trash 2	Trash 3
[illegible] 7	1	.2	.6	.2	[illegible]	[illegible]	[illegible]

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R																						6	2	9	5	6	6	2	1	1	1	1																			
	D																2		1	4	3	1	1																													
[illegible]	R			0																																																
	D										1		3	2	1	1	1																																			
[illegible]	R			0																																																
	D														2	1	1		1	1	1	1																														

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R																							1																												
	D									1				1							1																															
LSO	R																																																[illegible]	[illegible]	
	D																																																		
COL	R																																																		
	D																					1				3		1																								

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R																													1																						
	D			0																																																
[illegible]	R																					1																													
	D															1																																			
	R																																																		
	D																																																			

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																		
	D																																																			
	R																																																		
	D																																																			
	R																																																		
	D																																																			

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																		
	D																																																			
	R																																																		
	D																																																			
	R																																																		
	D																																																			

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																		
	D																																																			

TRIP #2	HAUL NO. 4	COMMENTS: [illegible]

SDATE	STIME	S. DEPTH (FTM)	HDATE	HTIME	HLAT	HLONG	H E/W	HDEPTH (FTM)
13-3-99			13-3-99				W	

Fish Ret.(Bskt)	Vol. Sampled (Bskt)	Result. Discards	Result. Retained	Result. Trash (tot.)	Trash 1	Trash 2	Trash 3
12) 5	1	.1	.5	.4	STA	HTN	WLH

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
RC	R																					2	5	4	2	8	4	6	2	1																							
	D																			2		1																															
SOL	R																				1			1																													
	D			0																																																	
CHT	R													1						[illegible]		[illegible]																															
	D			0																		[illegible]																															

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
LSD	R			0																																																
	D																																																		1	1	
WIT	R																					2		1	4																												
	D								1											1		1																															
	R																																																				
	D																																																				

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
	R																																																				
	D																																																				
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
	R																																																				
	D																																																				
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
	R																																																				
	D																																																				
	R																																																				
	D																																																					
	R																																																				
	D																																																					

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
	R																																																				
	D																																																				

TRIP	HAUL NO	COMMENTS
7?	3	

SDATE	STIME	S. DEPTH (FTM)	HDATE	HTIME	HLAT	HLONG	H E/W	HDEPTH (FTM)
[illegible]			13-3-99				W	

Fish Ret.(Bskt)	Vol. Sampled (Bskt)	Result. Discards	Result. Retained	Result. Trash (tot.)	Trash 1	Trash 2	Trash 3
6	1	.2	.5	.3			

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R																				4	6	9	6	1	8	4	5			2																						
	D												1			1	1	4	2	4	1	2																															
.C	R			0																																																	
	D													1																																						
?OL	R																							1																													
	D			0																																																	

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R									1																																											
	D			0																																																	
RL	R			0																																																	
	D										1		4		1	1																																					
[illegible]	R			0																																																	
	D																																																	5	1	1	

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
DAS	R			0																																																	
	D															1																																					
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																				
	D																																																				
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																			
	D																																																				
	R																																																				
	D																																																				
	R																																																				
	D																																																				

SPEC	DISC	TAVOL	VMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																			
	D																																																				

TRIP	HAUL NO.	COMMENTS
78	2	[illegible]

DATE	STIME	S. DEPTH (FTM)	HDATE	HTIME	HLAT	HLONG	H E/W	HDEPTH (FTM)
[illegible]			13-3-99				W	

Fish Ret. (Bskt)	Vol. Sampled (Bskt)	Result. Discards	Result. Retained	Result. Trash (tot.)	Trash 1	Trash 2	Trash 3
[illegible]	1	-2	.4	-4	STA	MAC	[illegible]

SPEC	DISC	T.VOL	V.MES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
[illegible]	R																		1			4	6	1	8	4	6	1	3	1	1	2
	D														1		1	1		1	1											
[illegible]	R			0																												
	D																2		2													
[illegible]	R			0																												
	D																															
[illegible]	R																		1													
	D			0																												
[illegible]	R																															1
	D			0																												
[illegible]	R			0																												
	D																	1		1												
	R																															
	D																															
	R																															
	D																															
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	D																															
	R																															
	D																															
	R																															
	D																															

SPEC	DISC	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	[illegible]	[illegible]	[illegible]
[illegible]	R																					
	D																					
[illegible]	R																					
	D																					
[illegible]	R																					
	D																	1		3		9
[illegible]	R																					
	D																					
[illegible]	R																					
	D																					
[illegible]	R																					
	D																					
	R																					
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	D																					

TRIP [illegible] | HAUL NO. 1 | COMMENTS: BOARDED AFTER [illegible]

SDATE 13-3-99 | STIME 1600 | S. DEPTH (FTM) 46 | HDATE 13-3-99 | HTIME 1655 | HLAT 50°26.51 | HLONG 002 59.93 | H E/W W | HDEPTH (FTM) 49

Fish Ret.(Bskt) 3 * | Vol. Sampled (Bskt) 1 | Result. Discards 1 | Result. Retained -3 | Result. Trash (tot.) -6 | Trash 1 STA | Trash 2 MIC | Trash 3 SPLOB

SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R																				2	2	1	4	2	5	2	2		1	3																					
[illegible]	D															1	1	2	3		1	1																														
[illegible]	R			0																																																	
[illegible]	D				1		1					2																																								
[illegible]	R			0	2																																																
[illegible]	D											2				1		2																																			
SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R				1	1		2																																												
[illegible]	D			0																																																	
[illegible]	R			0																																																	
	D													1																																					
[illegible]	R																																																			
[illegible]	D																																													2						
SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
[illegible]	R																																																			
[illegible]	D													2																																						
SQC	R													1																																						
[illegible]	D																																																			
	R																																																			
	D																																																			
SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																			
	D																																																			
	R																																																			
	D																																																			
	R																																																			
	D																																																			
SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																			
	D																																																			
	R																																																			
	D																																																			
	R																																																			
	D																																																			
SPEC	DISC	TAVOL	VAMES	CNT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55			
	R																																																			
	D																																																			

NB BASKETS ARE 8ST - MIN 4ST
Figures in brackets is 1st equivalent