MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE SIDE SCAN 50 KH FISH PAGE 1 OF 21

LOCATOR D1 (ID.) - 85 (YR.) - AR (AREA) (COL. 73-80)

TOW DIST./DEPTH: SOURCE _____ RECEIVER _____ SHIP R/V Discoverer

RECORDER TYPE/NO. leased Kline / 3 channel CHIEF SCIENTIST P. BARNES

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH M	RECORDER SCALE	SWEEP In/cm	SHOOT	FILTERS HIGH	LOW	POWER
	252	0510		6		PAP	SIDE	1	X		X		Start of roll	181	4.5	52	150 m	40				
	252	0930		6				1					Tape started HP 8T Analog mag		4.4	41						
	252	0955		6				1					Raise ss fish			38	150. m					
	252	1020		6				1					Raise fish			35	150 m					
	252	1030						1		X		X	Raise fish / change paper			34	150					
	252	1034		6				1					STOP MAGTAPE	174	4.4	34	150					
	252	1036		6				1					~~END~~ EOL 6 machine off.									
	252	1100		7		PAP		2	X		X		SOL 7, SOR 2	270	4.4	26	150 m					
	252	1139		7				2					Raise fish	270	4.4	27						
	252	1140		7				2		X			end mag tape Tape 1 ~~roll~~									
	252	1208		7				2			X		RAISE fish	295	4.2	25	150 m ~~75 m~~	~~1/4~~ ~~1/10~~				
	252	1234		8		PAP	SIDE	2					change Scale to 100 m	163	4.2	25	100 m					
	252	1600		9				2		X			EOL 9 end of roll 2	060	4.0	18	100 m					
	252	1847		TRAN				3	X				Start ~~End~~ of roll 3	030	4.0	19	100 m					
	252	1850		10				3					SOL 10	030	4.0	19	100 m					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Side scan 50 kHz Fish

PAGE 2 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80)
ID. YR. AREA

TOW DIST./DEPTH: SOURCE 50 KHZ RECEIVER

SHIP R/V Discoverer

RECORDER TYPE/NO. leased Kline

CHIEF SCIENTIST P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH m	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	252	2013		10				3					c/c 010° avoid ice	010°	4.0	25	100 m					
	252	2127		10				3					lower fish	355°	4.4	35	100 m					
	252	2203		10				3					Lower Fish	093	4.4	39	100 m					
	252	2241		10		PAP	SIDE	3		X			End of Roll #3	092	4.4	42	100 m					
	252	2242		10		PAP	SIDE	4	X				Start of Roll #4	092	4.4	42	100 m					
	252	2258		10								X	stop to clean helix									
		~~2258~~																				
	252	2305		10							X		restart									
	252	2333		11		PAP	SIDE					X	stop to Remount Paper									
	252	2334		11		↓	↓				X		Restart									
	253	0200		11		"	"					X	EOL 11; RECORDER OFF	250	4.8	28M	100 m					
	253	0950		12		PAP	SIDE	4			X		SOL 12: SIDESCAN ON	285	4.5	40	100 m					
	253	1100		12									RAISE FISH									
	253	1105		12				4		X		X	CHANGE PAPER END ROLL 4									
	253	1115		12		PAP	SIDE	5	X		X		START ROLL 5	285	4.5	32.5	100 m					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE KLEIN 50 KHZ SIDESCAN PAGE 3 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE 50 KHZ RECEIVER — SHIP DISCOVERER

RECORDER TYPE/NO. KLEIN 531T (Jolly) CHIEF SCIENTIST BARNES

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, STRT	OF REEL END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE °T	SPEED kts	WATER DEPTH m	RECORDER SCALE Range	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	253	1549		13		PAP	SIDE	5		X		X	end roll #5	205		18	100 m					
void R	253	1550		13		"	"	6	X		X		start roll #6	205	4.5		100m					
	253	1600		13				6				X	turn off system pull fish SOL 13	291	4.5	17.5	100m					
	253	2300		015		PAP	SIDE	6	X		X		SOR 6 - 500 kHz									500
	254	0523		016		PAP	SIDE	6					lower sidescan fish	029	4.5	32						"
	254	0526		016		PAP	SIDE	6		X		X	EOR 6 sss off	029	4.5	32						"
	254	0535		016		PAP	SIDE	7	X		X		Sidescan on SOR 7	028	4.5	41						"
	254	0612	30	016		PAP	SIDE	7					lower sidescan fish	035	4.5	51.5						
	254	0618		016		PAP	SIDE	7					sidescan lowered	036	4.5	52						
	254	0649		016		PAP	SIDE	7					lowering sidescan	036	4.5	56						
	254	0651		016		PAP	SIDE	7					sidescan lowered	036	4.5	56						
	254	0715		016		PAP	SIDE	7		X		X	EOR 7	036	5	~~62~~ 64						
voided R	254	0720				PAP	SIDE	8	X		X		SOR 8	035	5	67						
	254	0725				PAP	SIDE	8				X	lowering sidescan, sys. off									
	254	0726				PAP	SIDE	8			X		syst. on									
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

or 5002

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein 50 KHz Sidescan PAGE 4 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE _____ RECEIVER _____ SHIP Discoverer

RECORDER TYPE/NO. Klein 531T (Jolly) CHIEF SCIENTIST Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	254	0728		16		PAP	SIDE	8					sidescan lowered	035	5	71	100m					
	254	0729		16				8				X	syst. off	035	5	71						
VOID R	254	0752		16				8			X		syst. on	035	5	72						
	254	0755		16				8				X	syst. off	035	5	70						
	254	0845		16		PAP	SIDE	8					500 KHz SIDESCAN TO SURFACE	032	5	127						
	254	0855		16		PAP	SIDE	8					50 KHz SIDESCAN LOWERED	031	5	135						
	254	0909		16		PAP	SIDE	8[redacted]	X	[redacted]			50 KHz S.S. LOWERED [redacted] roll [redacted] 8 Start - ALL CABLE	031	4.5	140						
	254	1420		16				8[redacted]	[redacted]	X		[redacted]	SYS. OFF PULLED UP FISH [redacted] end of roll	320 ~~332~~	0.6	182						
	254	1530		17		PAP	SIDE	9[redacted]	X	[redacted]	X		SOL 17 (time?) System on SOR 9		drift	175	100					
	254	1535		17				9[redacted]	X				[redacted]	090	.25	~180	100					
	254	1723		17				9[redacted]		X		X	[redacted] sys. off pull fish EOR 9	110	1.0	~180						
	254	1725		17				9[redacted]					EOL 17	110	~1.0	~180						
	255	0657		TRAN				[redacted]					[redacted] fish into water	var	var	115m						
	255	0703		~~TRAN~~ 18				[redacted]					SOL 18 System on } no roll yet	"	"	120m						
	255	0712		18				[redacted]					system off } (recorder/fish problems)									
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1

EQUIP. TYPE KLEIN ~~50 OR 500KHZ~~ SIDESCAN

PAGE 5 OF 21

LOCATOR D1 (ID.) - 85 (YR.) - AR (AREA) (COL. 73-80)

TOW DIST./DEPTH: SOURCE FISH RECEIVER FISH

SHIP DISCOVERER

RECORDER TYPE/NO. KLEIN 531 T (Holly)

CHIEF SCIENTIST BARNES

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP ms/cm	SHOOT	FILTERS HIGH	LOW	freq ~~POWER~~ kHZ
	255	0805		18		PAP	SIDE	[redacted]			X		FISH IN H_2O (100 KHZ)	109	4	122m	150					100
		0817		18									delay 0.1 sec				75-150					100
	255	0820		18								X	RECORDER DOWN	109	4	122m						100
	255	0900		18				109	X		[redacted]		RECORDER ON @ 0845 SOR 10 ~~040~~	4		128m						100
	255	0930		18				109					routine (100 KHZ)	110	4	142m	150 m					100
	255	1030		18				109					RAISE FISH	108	4	66	150 m					100
	255	1120		18				109					change range to 100 m	110	4.5	42	100m					100
	255	1140		18				109					raise fish	110	4.0	35	100m					100
	255	1217		18				109					RAISED FISH									100
	255	1230		18				109		X		[redacted]	EOR # [redacted] 10	115		27.5	100 m					100
	255	1240		18		PAP	SIDE	110	X		[redacted]		SOR # [redacted] 11	115		27.5	100 m					100
	~~255~~	~~1360~~		~~18~~		"	"	~~10~~				X										
	255	1353		18		"	"	110				X	DOWN FOR CLEARING	"		"	"					100
	255	1356		18		"	"	110			X		UP	"	"	"	"					100
	255	1532		18		PAP	SIDE	11				X	END OF LINE 18	123	3.5	30	100m	40				100
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Analog Side Scan Sonar PAGE 6 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) ID. YR. AREA

TOW DIST./DEPTH: SOURCE Fish RECEIVER Fish SHIP Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST P. Bonnes / L. Phillips

PUNCH FLAG	TIME & POSITION: JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT *	MEDIA/SPEC. CODE 3 LETT'S	ARCHIVE NO.: DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO.: ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY: S/E ROLL, OF REEL STRT	S/E ROLL, OF REEL END	DATA/SYST RECORDING ON	DATA/SYST RECORDING OFF	COMMENTS	COURSE °T	SPEED kts	WATER DEPTH m	RECORDER: SCALE m	RECORDER: SWEEP	RECORDER: SHOOT	FILTERS: HIGH	FILTERS: LOW	freq ~~POWER~~ kHz
	256	0045		20		PAP	SIDE	11			X		System On START OF LINE 20	354	4.0	188	0-200					
	256	0300		20		PAP	SIDE	11		X			EOR #11 / SOR #12	330	4.0	132	0-200					
	256	0305		20		PAP	SIDE	12	X				System On, Fish lowered	330	4.0	126	0-200					
	~~256~~	~~0616~~		~~20~~		~~PAP~~	~~SIDE~~	~~12~~		~~X~~			~~EOR #12 system off~~	~~352~~	~~4.5~~	~~122~~	~~0-200~~					
	256	0715		20								X	EOL 20 sys off	040	4.5	165	0-200					
	256	1225		21		"	"	12			X		Sys on	265	4.0	147	0-150					
	256	1235		21		"	"	12				X	system off for adj	"	"	"	"					
	256	1255		21		"	"	12			X		system up	"	"		"					
	~~256~~	~~1307~~		~~21~~		~~"~~	~~"~~	~~12~~					~~c/s to 0.1" delay (from 0.15")~~	~~"~~	~~"~~	~~116~~	~~75-150~~					
	256	1350		21				12				X	EQUIP. OFF / PULLED FISH IN E.O.R. #12			~~48~~						
	256	2124		22				13			X		SOR 13 S.O.L #22 FISH IN WATER, RECORDER ON	105	4.5 ~~10~~	48						
	256	2220		22		PAP	SIDE	13		X			change paper EOR 13									
	256	2225		22		"	"	14	X				start roll 14	105	4.5	52	0-100					
	256	2322 ~~23~~		22				14					FISH LOWERED	99	4.8	60						
	256	2334		22				14					FISH LOWERED	112		68	0-100					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE KLEIN ANALOG SIDE SCAN SONAR PAGE 7 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE FISH RECEIVER FISH SHIP DISCOVERER

RECORDER TYPE/NO. KLIEN 531 T CHIEF SCIENTIST BARNES/PHILLIPS

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	DATA/EQUIP. CODE 4 LETTERS	ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH m	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	257	0113		22		PAP	SIDE	14			■		RAISED FISH	167	4.8	43	0-100m					
	257	0130		22		"	"	14			■		RAISED FISH	251	3	39	"					
	257	0151		22		"	"	14					RAISED FISHY	255	3	35	0-100m					
	257	0245		22		"	"	14		X		■	EOR 14	255	3	30	"					
	257	0254		22		"	"	15	X		■		SOR 15	255	3	30	"					
	257	0349		22		"	"	15			■		LOWERED FISH	340	4.5	35						
	257	0351		22		"	"	15			■		LOWERED FISH	340	4.5	36						
	257	0414		22		PAP	SIDE	15				X	system off	340	4.5	40	0-100m					
	257	0423		22		PAP	SIDE	15			X		system on	340	4.5	42	0-100m					
	257	0524		22		PAP	SIDE	15					fish lowered	340	4.5	51	0-100m					
	257	~~0555~~ 0552		22		PAP	SIDE	15					fish lowering	340	4.5	53	0-100					
	257	0703		22		PAP	SIDE	15		X		■	syst. off, EOR 15, EOL 22	340	4.5	58	0-100					
	257	0710		23		PAP	SIDE	16	X		■		syst. on, SOR 16	340	4.5	58	0-100					
	257	1121		23		PAP	SIDE	16		X			E.O.R 16	025	4.0	124	0-100					
	257	1128		23		PAP	SIDE	17	X				S.O.R 17	025	4.0	1355	0-100					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE KLEIN Analog Side Scan Sonar PAGE 8 OF 21

LOCATOR D1 (ID.) - 85 (YR.) - AR (AREA) (COL. 73-80)

TOW DIST./DEPTH: SOURCE FISH RECEIVER FISH SHIP DISCOVERER

RECORDER TYPE/NO. KLEIN 531 T CHIEF SCIENTIST Phillips/Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	257	1317		25		PAP	SIDE	17			X		(WAS 150m) CHANGED SCALE TO 100m	202	4.5	55	0-100m					
	257	1400		25		"	"	17				X	system off	"	"	53	"					
	258	1220		27		"	"	17			X		FISH DEPLOYED, RECORDING SYSTEM ON	340	4.5	102	"					
	258	1415		27		"	"	17		X		X	system down/paper change	321	4.5	~~20~~ 84	"					
	258	1420		27		"	"	18	X		X		system up SOR 18	"	"	"	"					
	258	1422		27		"	"	18			X		SLOWED PAPER SPEED FROM 40 LPI TO 50 LPI	"	"	"	"					
	258	1745		27		"	"	18				X	~~EO~~ sys. off EO/27	300	3.7	122.5	"					
	258	2150						19					Roll installed #19									
	260	0235		28				19	X				FISH IN WATER; SOL 28	125	4.5	25.5	0-100					
	260	0330		028		PAP	SIDE	019				X	EOL 28									500 k
	260	0330		028		PAP	SIDE	019		X			EOR									
	260	0440		029		PAP	SIDE	020	X				SOR 20 / SOL 029 (100 kHZ)	124		30.5	0-100	40 km/cm				100 k
	260	0446		029		PAP	SIDE	020					Raised fish									
	260	0519		029		PAP	SIDE	020					Raised fish									
	260	0600		029		PAP	SIDE	020				X	EOL 029									
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Analog Side-Scan Sonar PAGE 9 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE Fish RECEIVER Fish SHIP Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST L. Phillips

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO.	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO.	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH m	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	260	0806		** 30		PAP	SIDE	* 020			X		500KHZ FISH	310°	4.5	22.5	0-50 m					
	260	0936 ~~0836~~		30		PAP	SIDE	020		X			E.O.R. #20	310	4.5	36.5	0-50 m					
	260	0959		30		PAP	SIDE	021	X				S.OR #21	310	4.5	36	0-50 m					
	260	1210		30		"	"	21		X		X	EOR 21	275	4.5	43	0-50 m					
	260	1214		30		"	"	22	X		X		SOR 22	275	4.5	43	0-50 m					
	260	1415		30		"	"	22			X		CHANGED SCALE	270	5	40.5	0-100 m					
	260	1440		30		"	"	22		X		X	EOR 22	"	"	"	"					
	260	1447		30		"	"	23	X		X		SOR 23	"	"	"	"					
	260	1600		30		"	"	23				X	EOL 30	255	5	40	"					
	261	0300		31		"	"	23			X		SOL 31	215	4.4	42	"					500
	261	0309		31		"	"	23			X		CHANGING SCALE TO 0-50m	215	4.4	41	0-50 m					
	261	0325		31		"	"	23			X		change scale				0-100m					
	261	0448		31		"	"	23					EOL 31	240	4.5	37.5	"					
	261	0448		32		"	"	23					SOL 32	276	4.5	37.5	"					
	261	0534	35	32		"	"	23		X			EOR 23	276	4.5	38	"					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Analog Side-scan Sonar PAGE 10 OF 21

LOCATOR D1 (ID.) - 85 (YR.) - AR (AREA) (COL. 73-80)

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP R/V Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST L. Phillips / P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, STRT	OF REEL END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	261	0542		032		PAP	SIDE	24	X				SOR 24	276	4.5	38	0-100m					
	261	0551		032		"	"	24				X	sys off strange noise	276	4.5	38						
	261	0553		032		"	"	24			X		sys on	276	4.5	38						
	261	0557		032									sys off "died"	276	4.5	38.5						
	261	0701		32				~~25~~ 24	~~X~~		X		system on	276	4.5	39.5						
	261	0704		32				~~25~~ 24					fish lowered	276	4.5	39.5						
	261	0709		32				24					fish lowered	276	4.5	39.5						
	261	0740		32				24					~~fish~~ lowering fish	276	4.5	40						
	261	0748		32				24					fish lowered -	276	5.0	41						
	261	1055		32				24		Y			E.O.R 24	276	5.0	47.5						
	261	1101		32				25	X				S.O.R 25	266	5.0	47						
	~~261~~	~~1340~~		~~33~~				~~25~~		~~X~~			~~EOR 25~~	~~306~~	~~5~~	~~50~~	"					
	~~261~~	~~1515~~		~~33~~				~~25~~		~~X~~			~~EOR 25~~				"					
	~~261~~			~~33~~				~~26~~	~~X~~				~~SOR 26~~	~~306~~	~~5~~	~~50~~						
	261	1526						26	X				SOR 26									
	261	1600		33				26					EOL 33	306	4.5	48						
	261	1600		34				26					SOL 34	350	4.5	48						
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Analog Side-scan Sonar PAGE [redacted]11 OF 21

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP R/V Discoverer

LOCATOR D1 (ID.) – 85 (YR.) – AR (AREA) (COL. 73-80) RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST L. Phillips / P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO.	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO.	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
				**																		
	261	1822		34		PAP	SIDE	26* [redacted]					raise fish	352	4.2	40.5	0-100 m					
	261	1938		34		PAP	SIDE	26 [redacted]					fish lowered	348	4.5	45.5	0-100					
	261	1938		34		PAP	"	26 [redacted]		X		X	EOR [redacted] 26	348	4.5	45.5	"					
	261	1944	30	34		PAP	"	27 [redacted]	X	X	X	X	SOR [redacted] 27	348	4.5	45.5	"					
	261	1944	30	34		"	"	27 [redacted]	X				chart speed = 60 lines/min ~~change~~ eor 26 sor 27	348	4.5	45.5	"					
	261	2109		34		PAP	SIDE	27 [redacted]				X	EOL : ON STA 26		0							
	261	2230		35		PAP	SIDE	27 [redacted]			X		STARTED SS - ON LINE 35	348	4.5	44	0-100					
	261	2311			27			27				X	BREAK FOR STA 27									
	262	0010		35		"	"	27 [redacted]			X		FISH IN H_2O, EQUIP TURNED ON	003	4.3	42	0-100					
	262	0415		35		"	"	27 [redacted]		X			sys off eor 27	002	4.5	43.5	0-100					
	262	0421		35		"	"	28	X				sor 28	002	4.5	43.5						
	262	0712		35				28					raise fish	004	4.5	43						
	262	1042		36				28		X			end roll 28	150	5.0	42	0-100					
	262	1050		36				29	X				start roll 29	150	5.0	42	0-100					
	262	1730		37 [redacted]				29		X			end roll 29	284	4.5	43	0-100					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Analog Side-scan sonar PAGE 12 OF 21

LOCATOR D1 – 85 – AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP R/V Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO.	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO.	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
				**				*														
	262	1738		37		PAP	SIDE	30 [redacted]	X				SOR 30	284	4.5	43	0-100					
	262	1830		37		"	"	30 [redacted]				X	EOL 37	284	4.5	44	"					
	262	2000		38		PAP	SIDE	30 [redacted]			X		SOL 38	279	4.5	45.5	0-100					
	262	2130		38		PAP	SIDE	30 [redacted]				X	off for station 29		0	46.5						
	262	2245		38		PAP	SIDE	30 [redacted]			X		FISH BACK IN WATER	289	4.5	46.5	0-100					
	263	0225		38	30	"	"	30		X		X	SYSTEM OFF FOR CORING STA 30 / EOR 30	270	4.5	49	"					
	263	0400		38		"	"	31	X				SOR 31 lower fish continue line 38	255	4.0	49	0-100					
	263	0458		38		"	"	31					lower fish	250	4.5	50	"					
	263	0657		38		"	"	31					raise fish	250	4.5	51	"					
	263	0700		38		"	"	31				X	eol 38, sta. 31 sys off	250	4.5	51	"					
	263	0724		START	31	"	"	31			X		sys on, lowering fish	140	4.0	51	"					
	263	0725		39		"	"	31					sol 39	140	4.5	51	"					
	263	0740		39		"	"	31					lowering fish	140	4.5	51	"					
	263	1014		40		PAP	SIDE	31				X	change helix	225	4.5	50	0-100					
	263	1018		40		"	"	31			X		resume opn	225	4.5	50	0-100					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Sidescan sonar PAGE 13 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE FISH RECEIVER FISH SHIP DISCOVERER

RECORDER TYPE/NO. KLEIN 531T CHIEF SCIENTIST PHILLIPS / BARNES

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO.	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO.	'X' IN ONE BOX ONLY S/E ROLL, STRT	OF REEL END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	263	1100		** 40		PAP	SIDE	* 31		X			End roll 31 CHANGE HELIX	225	4.5	49.5						
	263	11~~25~~ 31		40		PAP	SIDE	32	X				START ROLL 32 500 KHZ FISH	225	4.5	49	0-100					
	263	1243		40		"	"	32				X	Fix Helex	250	4.4	49	0-100					
	263	1347		40		"	"	32			X		Fixed	"	"	"	"					
	263	1615		40		"	"	32					eol 40 fish raised	235	4.5	55	"					
	263	1623		41		"	"	32					sol 41 lowered fish	90	4.5	55	"					
	263	1700		41		"	"	32					eol 41	90	4.5	52.5	"					
	263	1705		TRAN		"	"	32			/	X	sys off	—	4.5	52.5	"					
	268	0240		42		"	"	33	X		X		SOR 33; SOL 42 500 KHZ FISH IN H_2O	105	4.5	34	0-50m					
	268	0250		42		"	"	33			X		C/S to 0-100 m	105	4.5	34	0-100m					
	268	0314		42		"	"	33			X		C/S TO 0-50	120	4.5	29	0-50m					
	268	0340		42		"	"	33				X	EOL 42	120	4.5	27	0-50m					
	268	0739		TRAN		"	"	33			X		sys on	295	4.5	23	0-100m					
	268	0743		43				33	X				sol #43	295	4.5	20	0-100m					
	268	0827		43		PAP	SIDE	33					CHANGE SCALE, 50 m	295	4.5	37	0-50 m					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE KLEIN SIDESCAN SONAR PAGE 14 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE FISH RECEIVER FISH SHIP DISCOVERER

RECORDER TYPE/NO. KLEIN 531T CHIEF SCIENTIST PHILLIPS/BARNES

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO.	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO.	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH m	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
				**				*														
	268			43		PAP	SIDE	33					change range (500 KHZ)	295	4.5	39.5	0-100m					
	268	1150		44		PAP	SIDE	33		X			E.O.R 33	175	4.5	35.5	0-100m					
	268	1157		44		PAP	SIDE	34	X				S.O.R 34	175	45	35	0-100m					
	268	1215		44		"	"	34					c/s	190	"	"	0-50m					
	268	1225		44		"	"	34					c/s	190	"	"	0-100m					
	268	1238		44		"	"	34			X		RAISED FISH	190	"	31.5	0-100m					
	268	1257		45		"	"	34			X		ADJUST FISH HEIGHT	065	4.5	32	0-100					
	268	1440		45		"	"	34				X	Pulled fish - replace tail fins	"	"	25	"					
	268	1515		45		"	"	34			X		fish back in	055	"	25	"					
	268	1530		45		"	"	34				X	sys. off eol 45	051	"	21	"					
	269	0655		46		"	"	34			X		sys on sol 46	320	4.5	57	"					
	269	0906		46		PAP	SIDE	34		X			end roll 34	320	4.5	56	"					
	269	0916		46		"	"	35	X				start roll 35	320	4.5	55	"					
	269	1541		46		PAP	SIDE	35		X			END ROLL 35	265	4.8	49	"					
	269	1548		46		"	"	36	X				SOR 36	"	"	"	"					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein Side-Scan Sonar PAGE 15 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE Fish RECEIVER Fish SHIP Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST L. Phillips / P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH m	RECORDER SCALE	SWEEP 1cm	SHOOT	FILTERS HIGH	LOW	POWER
	269	1700		046		PAP	SIDE	36				X	End of Line 046	265	4.5	48.5	100	60				
	269	1856		047		PAP	SIDE	36			X		start of Line 047				100	60				
	269	1922		047		PAP	SIDE	36					lowered fish									
	269	2200		047		PAP	SIDE	36				X	E.O.L. 47	280	4.5	49	100	60				
	269	2240		48		"	"	36			X		SOL 48	350	4.5	48	100 m					
	270	0040		48		"	"	36		X		X	EOR 36	325	4.2	46	"	"				
	270	0044		48		"	"	37	X		X		SOR 37	"	"	"	"	"				
	270	0119		48		"	"	37			X		RAISED FISH	275	4.1	45	"	"				
	270	0408		49		"	"	37				X	EOL 49 sys off	092	4.8	45.5	"	"				
	270	1005		~~49~~ 50		PAP	SIDE	37			X		E.O.L 50	184	4.5	46	100 m	"				
	270	1030		50		PAP	SIDE	37					c/scale to 50 m	184	4.5	41	50 m					
	270	1040		50		PAP	SIDE	37					c/scale to 100 m	184	4.5	43	100 m					
	270	1245		50		"	"	37		X			EOR 37	"	4.6	51	"					
	270	1251		50		"	"	38	X				SOR 38	"	"	"	"					
	270	1730		050		PAP	SIDE	38					Raised Side Scan									
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Analog Side-Scan Sonar PAGE 16 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST L. Phillips / P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE °T	SPEED kts	WATER DEPTH m	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	270	1915		050		PAP	SIDE	38				X	eor 38	130	4.5	50	0-100					
	270	1922	15	050		"	"	39			X		sor 39	130	4.5	52	0-100					
	270	1957		050		PAP	SIDE	39					Raised fish									
	270	2001	30	050		PAP	SIDE	39					Raised fish									
	~~270~~	~~2135~~		~~050~~		~~PAP~~	~~SIDE~~	39														
	271	1102		51				39			X		SOL 51	239	4.5	42.5	500 KHZ 0-100					
	271	1150		51		PAP	SIDE	39					change range	239	4.5	34	0-50m					
	271	1200		51		"	"	39			X		c/s to 0-100 m	239	4.5	33	0-100					
	271	1220		51		"	"	39			X		c/s to 0-50m	239	4.5	32	0-50					
	271	1225		51		"	"	39			X		c/s to 0-100m	239	4.5	32	0-100					
	271	1242		51		"	"	39					c/s to 0-50m	220	"	36	0-50					
	271	1252		51		"	"	39					c/s to 0-100m	"	"	36	0-100m					
	271	1535		51		"	"	39		X			EOR 39	"	4.8	32	"					
	271	1540		51		"	"	40	X				SOR 40	"	4.8	32	"					
	271	1600		051		PAP	SIDE	40					Raised Fish	220	4.8	29	0-100m					
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Analog Side scan sonar PAGE 17 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST Phillips/Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	271	1933		051		PAP	SIDE	40					C/Range to 50m				50m ~~100~~					
	271	1940	30	051		PAP	SIDE	40					C/Range to 25m				25m					
	271	1941	30	051		PAP	SIDE	40					C/Range to 50m				50m					
	271	1945		051		PAP	SIDE	40					C/Range to 100m				100m					
	271	2145		051		PAP	Side	40		X			S.O.R. # 40	220	4.5	25	100m					
	271	2152		051		PAP	Side	41 [redacted]	X				S.O.R # 41	220	4.5	25	100m					
	271	2155		51		"	"	41 [redacted]				X	System OFF - EOL 51	220	4.5	25	100					
	272	0300		52		"	"	41 [redacted]	[redacted]		X		SOL 52	320	4.6	42	0-100m					
	272	0515		52		"	"	41 [redacted]					~~Fish out~~ lower fish	328	4.5	44.5	"					
	272	0520		52		PAP	SIDE	41 [redacted]					" "	330	4.5	45	"					
	272	0600		52		"	"	41 [redacted]					Sweep check	330	4.5	46	"	50				
	272	0634	30	52		PAP	SIDE	41 [redacted]					lower fish	330	4.5	47	"	"				
	272	0657		52		"	"	41 [redacted]					lower fish	330	4.5	47	"	"				
	272	075[redacted]		52		"	"	41 [redacted]		X		[redacted]	EOR [redacted] 41	332	4.5	47	"	"				
	272	0801	30	52		"	"	42 [redacted]	X		[redacted]		SOR [redacted] 42	332	4.5	47	"	"				
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Analog Side-Scan Sonar PAGE 18 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80)
ID. YR. AREA

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP Discoverer

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST Phillips / Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO.	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO.	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH m	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER kHz
	272	1325		** 53		PAP	SIDE	* 42 [redacted]		X			EOR 42	230	5	46	0-100m	50				500
	272	1330		53		"	"	43 [redacted]	X				SOR [redacted] 43	230	5	46	"	"				
	272	1650	30	53		"	"	43					raising fish	230	5	39	"	"				
	272	1659		53		PAP	SIDE	43					raising fish	230	5.0	37	"	"				
	272	1731		53		"	"	43					" "	225	5.0	32	"	"				
	272	1745		53		"	"	43		X		[redacted]	EOL #53 EOR #43	230	5.0	32	"	"				
	273	0545		54		"	"	44	X		[redacted]		SOR 44 / SOL #54	210	4.5	43	0-100					
	273	0550		54		"	"	44					lower fish	207	4.5	42						
	273	1052		54		PAP	SIDE	44		X			E.O.R [redacted] 44	210	4.5	45.5	0-100	50				
	273	1056	31	54		PAP	SIDE	45	X				S.O.R [redacted] 45	210	4.5	44.5	0-100	50				
	273	1610		55		"	"	45		X			EOR #45	025	4.5	44	"					
	273	1617		55				46	X				SOR #46	025	4.5	44	"					
	273	1700		055		PAP	SIDE	46					End of Line 055	025	4.5	42.5	0-100	50				
	274 [redacted]	0850		056		PAP	SIDE	46			X		S.O.L 56	015	4.5	43.5	0-100m	50				
	274 [redacted]	1315		56		"	"	46		X			EOR 46	025	4.5	45	"	"				
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE ~~35 kH~~ Analog Side Scan Sonar PAGE 19 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) (ID. / YR. / AREA)

TOW DIST./DEPTH: SOURCE fish RECEIVER fish SHIP DISCOVERER

RECORDER TYPE/NO. ~~[illegible]~~ Klein 531T CHIEF SCIENTIST Phillips / Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, OF REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP	SHOOT	FILTERS HIGH	LOW	POWER
	274	1322		56		PAP	SIDE	47	X				SOR #47	025	4.5	45	0-100m					
	274	1330		57		PAP	SIDE	47					EOL #56 SOL #57	280	4.5	45	"					
	274	1645		57		PAP	SIDE	47				X	EOL #57	208	4.5	46.5	"					
	275	0755		TRAN		PAP	SIDE	47			X		sys on SOL #58 0800	200	4.5	46.5	"					
	275	0800		58		PAP	SIDE	47					lowering fish	200	4.5	46.5	"					
	275	0942		58		PAP	SIDE	47		X			E.O.R 47	203	4.5	46						
	275	0953		58		PAP	SIDE	48	X				S.O.R. 48	203	4.5	46						
	~~275~~	~~2035~~		~~59~~		PAP	SIDE	~~48~~		~~X~~			~~End roll 48~~									
	275	1525		059		PAP	SIDE	48		X			End 48									
	275	1530		59		PAP	SIDE	49	X				START 49									
	275	2035		59		PAP	SIDE	49		X			End roll 49 (EOL 59)									
→	276	1126		60		PAP	SIDE	50					START LINE START ROLL 50	119°	4.5	47						
	276	1656	20	60		PAP	SIDE	50		X			eor #50	110	4.5	46						
	276	1703		60		PAP	SIDE	51	X				sor #51	110	4.5	46						
	276	1813		060		PAP	SIDE	51					Fish lowered									
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein 500 kHz Side Scan Sonar PAGE 20 OF 21

LOCATOR D1 - 85 - AR (COL. 73-80) ID. YR. AREA

TOW DIST./DEPTH: SOURCE Fish RECEIVER Fish SHIP R/V Discoverer

RECORDER TYPE/NO. Klein 531T CHIEF SCIENTIST L. Phillips / P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E OF ROLL, REEL STRT	END	DATA/SYST RECORDING ON	OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	SWEEP ins/cm	SHOOT	FILTERS HIGH	LOW	POWER
	276	1958		060		PAP	SIDE	51					Raised Fish									
	276	2130		60		PAP	SIDE	51		X		~~X~~	End line 60 End roll 51	125	4.5	37.5	100 m	50				
	276	0713		61		PAP	SIDE	52	X				Sys on SOL #61	310	4.5	30.5	100 m	50				
	277	1245		62		"	"	52		X			EOR 52	270	4.5	42.5	"	50				
	277	1255		62		"	"	53	X				SOR 53	"	"	"	"	50				
	277	1630		062		PAP	SIDE	53				X	End of Line 062				100 m	50				
	278	0837		63		PAP	SIDE	53			X		SOL 63	270	4.5	29.5	100 m					
	278	0935		63		"	"	53		X		~~X~~	End roll 53									
	278	0939	40	63		"	"	54	X				Start roll 54	290	4.5	35.5	100 m	50				
	278	1455		63		"	"	54		X			EOR 54	290	4.7	44.5	100 m	50				
	278	1502		63		"	"	55	X				SOR 55	"	"	44.5	"					
	278	1700		63		"	"	55				X	E.O.L #63	290	4.5	48	"					
	279	0648		64		PAP	SIDE	55			X		S.O.L. #64	228	4.7	36	"					
	279	0655		64		"	"	55					change scale to 50 m	228	4.7	36	0-50					
	279	0800		64		PAP	SIDE	55		X			Break in Line EOR 55									
	1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33	37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)

MDIG 1/77

U.S.G.S. ACOUSTIC EQUIPMENT LOG

LEG 1 EQUIP. TYPE Klein 500 KHz Side Scan Sonar PAGE 21 OF 21

TOW DIST./DEPTH: SOURCE Fish RECEIVER Fish SHIP Discoverer

LOCATOR ____ – ____ – ____ (COL. 73-80) (ID. / YR. / AREA)

RECORDER TYPE/NO. Klein 531 T CHIEF SCIENTIST L. Phillips / P. Barnes

PUNCH FLAG	TIME & POSITION * JULIAN DAY	GMT HR.-MIN.	GMT SEC.	LINE NO. **	STA. NO. OR SHOT POINT	MEDIA/ SPEC. CODE 3 LETT'S	ARCHIVE NO. DATA/EQUIP. CODE 4 LETTERS	ARCHIVE NO. ROLL, REEL OR SEQUENCE NO. 5 LET/NO. *	'X' IN ONE BOX ONLY S/E ROLL, STRT	OF REEL END	DATA/SYST RECORDING ON	DATA/SYST RECORDING OFF	COMMENTS	COURSE	SPEED	WATER DEPTH	RECORDER SCALE	RECORDER SWEEP	RECORDER SHOOT	FILTERS HIGH	FILTERS LOW	POWER
	279	090.5		064		PAP	Side	56	X				S.O.R 56 / Resume Line 064	225	4.0	39m	0-50					
	279	1120		64		PAP	SIDE	56		X			End roll, line, cruise			49.5						
1-3	5-8	9, 10	12-15	16-19	21-23	25-28	29-33		37	38	39	40										

* PLEASE RIGHT-JUSTIFY THESE ENTRIES

** DO NOT ENTER ST/END OF LINE ON THIS FORM (FOR KEYPUNCHING)