NAVIGATION LINE LOG

DATE: 2/22/08

JULIAN DAY: 53

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -106 m
DC EOL : -5.5 m
SMG SOL: 4.96 knots
SMG EOL: 4.85 knots
FEATHER SOL : 82 °
FEATHER EOL : 4.5 °
MAX FEATHER : 82 °

LINE NAME : Hess_1
SEQUENCE : 1
LINE BRG : 138.6°

DEPTH SOL: 533 m
DEPTH EOL: na

WEATHER
WIND SOL : NNW 12kt
WIND EOL : NNW 12kt
SEAS SOL : 2m
SEAS EOL : 2m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
991	3:51	First run-in shotpoint	Test shots
994	3:52	First recorded shotpoint	Line start
1001	3:59		DC -54m
1020	4:19	All compasses "red"	low confidence values
1033	4:34	do estimate position on "main node"	Feather angle change by 40 plus degrees
1071	5:16	Lost GPS positioning on gun string 2	
1101	5:49	Gun string 2 back	
1601	21:21	LSP	Last Shot Point

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	994	11° 49' 47.980"	83° 01' 45.460"
LGSP	1601	11° 15' 10.820"	82° 25' 29.720"

NAVIGATION OFFSETS APPLIED

Ves - CNG	217m
Ves - CS	130m
CS - CNG	87m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	173.5m

Syntrak Reel#	First File	Last File
4	1001	1482
5	1483	1608

Raw Nav File:
P1 Hess_1.0.P190 P2 Hess_1.0.P294

Str. @ 6 m

General remarks: Gun string 2 gun 2 has false reading. Stirng 2 gun 1 bad depth sensor. String 4 gun 2 bad, String 3 gun 2 intermittent.

Posnet remarks: COMPASSES KO'd Depths KO'd
Posnet gun strings 1 and 3 no data Tailuoy drops out
compass 7 ko'ed from sol

SCN MGL0804.2D.8K version 3 - Magnetic Dec change to 1.35 degrees.

Shot point spacing this line 150 meters

Line Status: Line Complete

NAVIGATION LINE LOG

DATE: 2/22/08

JULIAN DAY: 53

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 21.0 m
DC EOL : -5.5 m
SMG SOL: 4.9 knots
SMG EOL: 4.7 knots
FEATHER SOL : -80.5 °
FEATHER EOL : 4 °
MAX FEATHER : -80.5 °

LINE NAME : 1E_1
SEQUENCE : 2
LINE BRG : 225°

DEPTH SOL: 21.63 m
DEPTH EOL: 2088m

WEATHER
WIND SOL : NNW 5kt
WIND EOL : NNW 5kt
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
2001	19:53	First SP	
2018	20:10	Estimate Cable on Main	Reset data from Birds to reshape cable
2036	20:27	Estimate Cable on Main	Reset data from Birds to reshape cable
2056	20:47	Estimate Cable on Main	Reset data from Birds to reshape cable
2123	21:52	String 2 off	Gun String shut down for autofiring gun
2138	22:07	Bearing to Tailbouy via radar 41 deg	Feather angle = 4deg per radar, 5.6 deg per Spectra
2158	22:27	All birds went red	No data from cable. Continue to shoot for OBS data
2146	22:15	last recorded file on Syntrak	Optical seismic data probably went before copper bird data
2293	0:50	LGSP	Switched to internal. Keep firing one gun for Mammal
			Note: Navigation offsets applied in Spectra are different from these numbers
			These numbers are more correct

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	2001	11° 29' 55.828"	82° 34' 16.141"
LGSP	2293	11° 12' 44.952"	82° 52' 06.222"

NAVIGATION OFFSETS APPLIED

Ves - CNG	217m
Ves - CS	130m
CS - CNG	87m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	173.5m

Syntrak Reel#	First File	Last File
6	2001	2146

P1	Raw Nav File:	P2
1E_1_1.0.P190		1E_1.0.P294

Str. @ 6 m

General remarks: String 4 gun 2 out.

Posnet remarks: Posnet down
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K version 3
Shot point spacing this line 150 meters

Line Status: line incomplete

NAVIGATION LINE LOG

DATE: 2/23/08

JULIAN DAY: 53

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -18 m
DC EOL : 700.6 m
SMG SOL: 4.7 knots
SMG EOL: 34.9 knots
FEATHER SOL : -80 °
FEATHER EOL : -6.3 °
MAX FEATHER : -80 °

LINE NAME : 1E_2
SEQUENCE : 3
LINE BRG : 225°

DEPTH SOL: 2299 m
DEPTH EOL: 70m

WEATHER
WIND SOL : 1-2kt sw
WIND EOL : 1-2kt sw
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
3051	10:25	SOL	S1 in turn - cable out of spec
3078	10:52	Do estimate on main node	Reset data from Birds to reshape cable
3086	11:00	Cable now in spec for water depth.	Feather angle now 22.3 deg.
3872	23:59	LSP	Ship turned off line early

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	3051	11° 26' 32.540"	82° 37' 45.810"
LGSP	3872	10° 39' 59.340"	83° 26' 31.040"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230.0m
Ves - CS	130.0m
CS - CNG	87.0m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	173.5m

Syntrak Reel#	First File	Last File
7	3001	3482
8	3483	3822

P1	Raw Nav File:	P2
1E_2_1.0.P190		1E_2.0.P294

Str. @ 6 m

General remarks: string 4 gun 2 out at sol.

Shot point spacing this line 150 meters

Posnet remarks: Posnet no data available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K version 4 - V1 to S1 offset was 130m is now 230m and Head stretch was 25m is now 30m

Line Status: Complete

NAVIGATION LINE LOG

DATE: 2/24/08

JULIAN DAY: 55

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -3.2 m	*LINE NAME :* Transit_1	*DEPTH SOL:* 526 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : 1 m	*SEQUENCE :* 4	*DEPTH EOL:* na	*NAVIGATION SYSTEM USED :* *Pos M V*
SMG SOL: 4.65 knots	*LINE BRG :* 4.1°	*WEATHER*	*NAVIGATION SYSTEM USED :* *SeaPath - not working*
SMG EOL: 4.75 knots		*WIND SOL :* 1-2kt sw	Gravity meter: none
FEATHER SOL : 1.9 °		*WIND EOL :* 1-2kt sw	Magnetonmeter: Geometrics
FEATHER EOL : -1.4 °		*SEAS SOL :* 1m	*MAG DEC USED :* -1.35 deg
MAX FEATHER : 1.9 °		*SEAS EOL :* 1m	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
4043	2:27	FSP	Line to explore unusual geologic feature. Target of opportunity.
4271	3:47	Range bearing to TB	4.6 nm 188deg = 4 deg feather angle Spectra shows -1.4 deg
4387	4:28	Turned off gun string 3	
4391	4:29	LSP	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	4043	10° 50' 04.222"	83° 27' 39.706"
LGSP	4391	10° 59' 29.706"	83° 26' 58.144"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
9	4001	4348

P1	Raw Nav File:	P2
Transit_1.0.p294		Transit_1.0.p190

Str. @ 6 m

General remarks:	string 4 gun 2 out at sol.	**Shot point spacing this line 150 meters**	
Posnet remarks:	**Posnet no data available**	**SCN MGL0804.2D.8K version 4 - V1 to S1 offset was 130m is now 230m and**	
COMPASSES KO'd	**compass 7 ko'ed from sol**	**Head stretch was 25m is now 30m**	
Depths KO'd		**Line Status:**	**Complete**

NAVIGATION LINE LOG

DATE: 2/24/00

JULIAN DAY: 55

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 8.8 m
DC EOL : -10.8 m
SMG SOL: 4.69 knots
SMG EOL: 4.52 knots
FEATHER SOL : -77.3 °
FEATHER EOL : -1.1 °
MAX FEATHER : -77.3 °

LINE NAME : Limon_1
SEQUENCE : 5
LINE BRG : 143.6°

DEPTH SOL: 65.2 m
DEPTH EOL: na

WEATHER
WIND SOL : 10kts nnw
WIND EOL : 1.1 kts
SEAS SOL : 1-2m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
5107	6:52	SOL	Cable in turn, guns out of position and string 4 is caught in lead-in
5122	7:08	Reduce speed	To get cable out of string 4
5125	7:11	Return to shooting speed	
5125	7:20	Estimate main node	Streamer shape still in extreme turn
5135	7:22	Cable in spec	Still need guns to get in position
5136	7:23	Estimate main node	compass's - low confidence
5146	7:33	Guns in spec	All conditions met - marine acquisition normal
5612	15:23	off line - max 98.3m	Wind forced vessel off line to port side gradually
	15:42	Lead-in caught in gun string 3	
6062	22:37	Turned off string 3	need to drop guns back to untangle from cable
6157	0:17	LSP	P1, P2 log file size not increasing (reoccurs at a regular interval)

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	5107	10° 57' 55.297"	83° 34' 17.148"
LGSP	6157	09° 49' 12.208"	82° 42' 56.247"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
10	5107	5588
11	5589	6070
12	6071	6155

P1	Raw Nav File:	P2
Limon_1.0.p190		Limon_1.0.p294

Str. @ 6 m

General remarks: string 4 gun 2 out at sol.

Posnet remarks: Posnet gun strings 1 and 3 no data No tailbuoy data available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K version 4
Shot point spacing this line 150 meters

Line Status:

NAVIGATION LINE LOG

DATE: 2/25/08

JULIAN DAY: 56

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 10.3 m
DC EOL : -2.7 m
SMG SOL: 4.8 knots
SMG EOL: 4.09 knots
FEATHER SOL : 5.3 °
FEATHER EOL : 2.8 °
MAX FEATHER : 5.3 °

LINE NAME : Limon_2
SEQUENCE : 6
LINE BRG : 323.6°

DEPTH SOL: 917.9 m
DEPTH EOL: 66m
WEATHER
WIND SOL : 15kts nw
WIND EOL : 15kts nw
SEAS SOL : 1-2m
SEAS EOL : 1-2m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : *Pos M V*
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics (not used)
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
7001	6:35	SOL	
7464	9:36	Remove string 3 gun 2 out of solution	spare gun 5 in.
10232	3:31	Shut down gun string 2 for turn	
10261	3:42	LSP	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	7001	09° 47' 02.376"	82° 41' 19.809"
LGSP	10261	10° 58' 08.358"	83° 34' 26.680"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
13	7001	7482
14	7483	7964
15	7965	8446
16	8447	8928
17	8929	9410
18	9411	9892
19	9893	10256

Raw Nav File:
P1: Limon_2.0.p190
P2: Limon_2.0.p294

Str. @ 6 m

General remarks: All guns good at start of line

Posnet remarks: COMPASSES KO'd
Depths KO'd
Posnet gun strings 1 and 3 no data Gun strings 2 & 4 and TB1 working
compass 7 ko'ed from sol

SCN MGL0804.2D.8K Moved last bird to tail stretch (ver 5), moved birds 2-27 back one section each (ver 6)
Shot point spacing this line 50 meters

Line Status: Complete

NAVIGATION LINE LOG

DATE: 2/26/08

JULIAN DAY: 57

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 13.8 m
DC EOL : 1.5 m
SMG SOL: 4.27 knots
SMG EOL:
FEATHER SOL : 30.9 °
FEATHER EOL : 2.2 °
MAX FEATHER : 30.9 °

LINE NAME : Paris_1
SEQUENCE : 7
LINE BRG : 67.4°

DEPTH SOL: 184 m
DEPTH EOL: 1375m
WEATHER
WIND SOL : 15 kts
WIND EOL : 12kts n
SEAS SOL : 1-2m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
11165	5:02	FSP	Shot with Gun Strings 1+2 only
11231	5:25	Feather Angle 10 deg	
11501	7:05	Strings 3 & 4 going out	not to be used this line
11668	8:08	End line d/t compressor problems	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	11165	11° 02' 00.828"	83° 31' 54.906"
LGSP	11668	11° 07' 15.885"	83° 19' 09.318"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
20	11165	11646
21	11647	11668

P1	Raw Nav File:	P2
Paris_1.0.p190		Paris_1.0.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet gun strings 1 3 and 4 no data Gun string 2 and TB1 working
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: Line incomplete

NAVIGATION LINE LOG

DATE: 2/26/08

JULIAN DAY: 57

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 1.9 m
DC EOL : 0.5 m
SMG SOL: 4.68 knots
SMG EOL: 4.8 knots
FEATHER SOL : 2.3 °
FEATHER EOL : 1.8 °
MAX FEATHER : 3.5 °

LINE NAME : Paris_2
SEQUENCE : 8
LINE BRG : 140.3°

DEPTH SOL: 1608 m
DEPTH EOL: 1598m
WEATHER
WIND SOL : 12kts nnw
WIND EOL : 13kts nnw
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
12185	12:47	Sol	Problems with SeisNet
12193	12:50	First good sp	
12778	16:06	Shut down strings 1 & 2	For repairs
12846	16:29	EOL	Stop line for turn - considered complete
12847	16:29	Not recorded to SeisNet	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	12193	10° 52' 12.071"	83° 06' 11.646"
LGSP	12846	10° 38' 23.086"	82° 54' 35.003"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
22	12187	12666
23	12667	12840

P1	Raw Nav File:	P2
Paris_2.0.190		Paris_2.0.294

Str. @ 6 m

General remarks: Gun string 4 - guns 1,2,3 are not working at sol.

Posnet remarks: Posnet gun strings 1 and 3 no data Gun strings 2 & 4 and TB1 working
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: Line complete

NAVIGATION LINE LOG

DATE: 2/26/08

JULIAN DAY: 57

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -3.1 m
DC EOL : -2.7 m
SMG SOL: 4.8 knots
SMG EOL: 4.84 knots
FEATHER SOL : 29.9 °
FEATHER EOL : -6.1 °
MAX FEATHER : 29.9 °

LINE NAME : Paris_3
SEQUENCE : 9
LINE BRG : 232.7°

DEPTH SOL: 1512 m
DEPTH EOL: 794m
WEATHER
WIND SOL : 4kts wnw
WIND EOL : 4kts wnw
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
13151	17:35	Sol with gun strings 3 & 4	Gun strings 1 & 2 on deck for repairs
13209	17:55	Feather angle 10deg	Cable coming straight
13269	18:15	All gun strings online	
13370	18:48		turned on 2 spare guns to replace failng S1G2, S2G1
13745	20:54	Turn off gun strings 1+2	Prerpare for turrn
13788	21:09	LSP	Stop line for turn - considered complete

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	13151	10° 34' 02.198"	82° 56' 16.273"
LGSP	13788	10° 23' 33.967"	83° 10' 10.983"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
24	13151	13632
25	13633	13787

P1	Raw Nav File:	P2
Paris_3.0.190		Paris_3.0.294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet gun strings 1 and 3 no data Gun strings 2 & 4 and TB1 working
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line complete**

NAVIGATION LINE LOG

DATE: 2/26/08

JULIAN DAY: 57

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -5.0 m	*LINE NAME :* Paris_4	*DEPTH SOL:* 544 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : -6.5 m	*SEQUENCE :* 10	*DEPTH EOL:* 101 m	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: 4.17 knots	*LINE BRG :* 319.5°	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: 4.15 knots		*WIND SOL :* 7.8kts	Gravity meter: none
FEATHER SOL : 40.3 °		*WIND EOL :* 7.2kts	Magnetonmeter: Geometrics
FEATHER EOL : -0.8 °		*SEAS SOL :* 1-2 m	*MAG DEC USED :* -1.35 deg
MAX FEATHER : 40.3 °		*SEAS EOL :* 2m	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
14101	22:06	Fsp	Cable still in turrn, 40.3 deg, Gun Srings 1+2 offline
14103	22:07		First recorded shot on Syntrak
14150	22:24		All guns online
14190	22:39		Cable Feather angle 8.6
14657	1:39		Shut Down Gun String 2
14717	2:20	LSP	Stop line for turn - considered complete

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	14101	10° 24' 15.798"	83° 13' 46.858"
LGSP	14717	10° 36' 58.777"	83° 24' 44.440"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
26	14101	14582
27	14583	14705

P1	Raw Nav File:	P2
Paris_4.0.190		Paris_4.0.294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line complete**

NAVIGATION LINE LOG

DATE: 2/27/08

JULIAN DAY: 58

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 18.9 m	*LINE NAME :* 1E_MCS	*DEPTH SOL:* 322 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : -4.2 m	*SEQUENCE :* 11	*DEPTH EOL:* 2208m	*NAVIGATION SYSTEM USED :* *Pos M V*
SMG SOL: 4.49 knots	*LINE BRG :* 45.6°	*WEATHER*	*NAVIGATION SYSTEM USED :* *SeaPath - not working*
SMG EOL: 3.96 knots		*WIND SOL :* 10.5	Gravity meter: none
FEATHER SOL : 55.4 °		*WIND EOL :* 7kts	Magnetonmeter: Geometrics
FEATHER EOL : 0.6 °		*SEAS SOL :* 1m	*MAG DEC USED :* -1.35 deg
MAX FEATHER : 55.4 °		*SEAS EOL :* 1m	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
15121	3:04	FSP	Started with Gun Strings 1,3,4 - SeisNet not functioning normal
15146	3:13		Enabled String 2, jumper bad, 1 thru 8 disconnected.
15147	3:14		Shutdown Gun String 2, SiesNet down, record 15147
15210	3:37		SeisNet back online
15242	3:49	Feather Angle 10 deg	
15256	3:54		Gun String 2 back online
16630	12:40	Stop guns for various whales	Spectra still running, reduce speed, continue on line
16847	14:12	Strart ramping up guns	returning to speed - air leak string 4
16921	14:42	Strings 1 & 2 enabled up to now.	Working on string 4
16997	15:14	Stop line d/t gun problems	Will circle and try again later.

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	15121	10° 40' 43.659"	83° 25' 11.430"
LGSP	16630	11° 09' 20.230"	82° 55' 39.090"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
31	15121	15147
32	15210	15691
33	15692	16173
34	16174	16655
35	16656	16993

P1	Raw Nav File:	P2
1E_MCS.0.p190		1E_MCS.0.p294

Str. @ 6 m

General remarks: SeisNet Reels 28, 29, and 30 have little or no data
Seisnet missing files 15148 - 15209 SP16631 - 167 missed shots d/t whales

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line Incomplete**

NAVIGATION LINE LOG

DATE: 2/27/08

JULIAN DAY: 58

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 76.3 m
DC EOL : 922 m
SMG SOL: 5.18 knots
SMG EOL: 5.05 knots
FEATHER SOL : -55 °
FEATHER EOL : -8 °
MAX FEATHER : -55 °

LINE NAME : 1_Para
SEQUENCE : 12
LINE BRG : 225.6°

DEPTH SOL: 2117 m
DEPTH EOL: 1970m
WEATHER
WIND SOL : 3kts
WIND EOL : 3kts
SEAS SOL : calm
SEAS EOL : calm

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
17071	15:24	SOL in turn	Start with strings 1 & 2
17198	15:29	Do estimate on Main node	Reset compass filters feather now -4.1deg.
17455	20:32	Power down all but 1 gun for Mammals	
17512	20:31	Start ramp up for mammals	
17529	20:29	LSP	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	17071	11° 16' 35.532"	82° 52' 15.874"
LGSP	17529	11° 08' 17.655"	83° 01' 31.386"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
36	17071	17529

P1	Raw Nav File:	P2
1E_Para.0.p190		1E_Para.0.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line Complete**

NAVIGATION LINE LOG

DATE: 2/27/08

JULIAN DAY: 58

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -1044 m
DC EOL : -765 m
SMG SOL: 2.8 knots
SMG EOL: 3.8 knots
FEATHER SOL : -131.5 °
FEATHER EOL : -0.9 °
MAX FEATHER : -131.5 °

LINE NAME : 1E_MCS2
SEQUENCE : 13
LINE BRG : 45.6°

DEPTH SOL: 1891 m
DEPTH EOL: 9964m

WEATHER
WIND SOL : Calm
WIND EOL : 9kts nw
SEAS SOL : Calm
SEAS EOL : Calm

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
19401	19:49	FSP	Still in Turn Gun Strings 1+2 online
19485	20:23		Drop to one gun for hatchling turtle
19619	21:17		All gun strings online, cable straight
21177	08:01	remove string 2 from gun solution	Prepare for turn
21207	08:09	EOL for turn to next line	
			Note: distance offline d/t waypoint change after line start up.

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	19401	11° 05' 26.699"	83° 00' 30.725"
LGSP	21207	11° 39' 10.780"	82° 24' 35.830"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
37	19401	19882
38	19883	20364
39	20365	20846
40	20847	21202

P1	Raw Nav File:	P2
E1_MCS2.0.p190		E1_MCS2.0.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line Complete**

NAVIGATION LINE LOG

DATE: 2/28/08

JULIAN DAY: 59

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 0 m
DC EOL : 0 m
SMG SOL: 4.6 knots
SMG EOL: 4.3 knots
FEATHER SOL : in turn °
FEATHER EOL : in turn °
MAX FEATHER : in turn °

LINE NAME : OBS
SEQUENCE : 2
LINE BRG : na

DEPTH SOL: 1683 m
DEPTH EOL: na
WEATHER
WIND SOL : 7kts
WIND EOL : 10kts
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
18001	8:15	Cycle time line on turn	only recording is nav p1 & p2 - string 2 out of solution d/t turn
18149	9:18	Cycle time line off	On line ready to record seismic events

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	18001	11° 39' 18.359"	82° 24' 24.909"
LGSP	18149	11° 37' 55.399"	82° 20' 39.594"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
NA		

P1	Raw Nav File:	P2
OBS.0.p190		OBS.0.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 2/28/08

JULIAN DAY: 59

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 35.8 m
DC EOL : 51.8 m
SMG SOL: 4.35 knots
SMG EOL: 4.36 knots
FEATHER SOL : 35.2 °
FEATHER EOL : 11.2 °
MAX FEATHER : 35.2 °

LINE NAME : HG1
SEQUENCE : 14
LINE BRG : 135°

DEPTH SOL: 2113 m
DEPTH EOL: na
WEATHER
WIND SOL : 10kts
WIND EOL : 12kts
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
22140	9:20	SOL	String 2 out at sol
22280	10:13	All strings in solution	
22368	10:45	bring in string 2	for turn to next line
22425	11:07	EOL	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	22140	11° 37' 49.207"	82° 20' 33.599"
LGSP	22425	11° 32' 20.898"	82° 15' 01.420"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
41	22001	22285

P1	Raw Nav File:	P2
HG1.0.p190		HG1.0.p294

Str. @ 6 m

General remarks: Multibeam stopped on this line

Posnet remarks:
COMPASSES KO'd Posnet - not available
Depths KO'd compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status:

NAVIGATION LINE LOG

DATE: 2/28/08

JULIAN DAY: 59

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 0 m
DC EOL : 0 m
SMG SOL: 4.8 knots
SMG EOL:
FEATHER SOL : in turn °
FEATHER EOL : in turn °
MAX FEATHER : in turn °

LINE NAME : OBS
SEQUENCE : 3
LINE BRG : na

DEPTH SOL: na
DEPTH EOL: na
WEATHER
WIND SOL : 1 w
WIND EOL : 4 w
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : *Pos M V*
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
1	11:08	Cycle time line on turn	only recording is nav p1 & p2 - string 2 out of solution d/t turn
74	11:32	EOL	On line ready to record seismic events

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	1	11° 32' 16.547"	82° 14' 58.301"
LGSP	74	11° 30' 24.043"	82° 14' 34.021"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
NA		

P1	Raw Nav File:	P2
OBS.1.p190		OBS.1.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 2/28/08

JULIAN DAY: 59

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 32.4 m
DC EOL : 0.7 m
SMG SOL: 5 knots
SMG EOL: 4.9 knots
FEATHER SOL : 43.1 °
FEATHER EOL : 5.3 °
MAX FEATHER : 43.1 °

LINE NAME : HG2
SEQUENCE : 15
LINE BRG : 180°

DEPTH SOL: na
DEPTH EOL: na
WEATHER
WIND SOL : 6kts sw
WIND EOL : 8kts se
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : *Pos M V*
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
23062	11:34	SOL	guns did not fire
23063	11:34	FGSP Gun strings 1, 3, & 4	Sting 2 not in position
23120	11:53	estimate position on main	reset compass values
23130	11:56	Guns at full volume	
23775	15:23	Disable gun string 2	For line change
23801	15:31	EOL	Stop line for line change

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	23062	11° 30' 17.284"	82° 14' 34.072"
LGSP	23801	11° 10' 12.791"	82° 14' 33.021"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
42	23062	23543
43	23544	23800

P1	Raw Nav File:	P2
HG2.0.p190		HG2.0.p294

Str. @ 6 m

General remarks: Multibeam not working this line

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line complete**

NAVIGATION LINE LOG

DATE: 2/28/08

JULIAN DAY: 59

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -3.6 m
DC EOL : 88.1 m
SMG SOL: 5 knots
SMG EOL: 4.95 knots
FEATHER SOL : 32.6 °
FEATHER EOL : -4.2 °
MAX FEATHER : 32.6 °

LINE NAME : HG3
SEQUENCE : 16
LINE BRG : 228.1°

DEPTH SOL: na
DEPTH EOL: na
WEATHER
WIND SOL : 6kts sse
WIND EOL : 6kts sse
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : *Pos M V*
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
24081	16:05	SOL	
25348	22:56	EOL	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	24081	11° 07' 42.660"	82° 16' 12.245"
LGSP	25348	10° 44' 47.741"	82° 42' 06.764"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
44	24072	24553
45	24554	25035
46	25036	25347

P1	Raw Nav File:	P2
HG3.0.p190		HG3.0.p294

Str. @ 6 m

General remarks: Multibeam working this line

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line Complete**

NAVIGATION LINE LOG

DATE: 2/28/08

JULIAN DAY: 59

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 0 m
DC EOL : 0 m
SMG SOL: 4.8 knots
SMG EOL: 4.8 knots
FEATHER SOL : in turn °
FEATHER EOL : in turn °
MAX FEATHER : in turn °

LINE NAME : OBS
SEQUENCE : 4
LINE BRG : na

DEPTH SOL: na m
DEPTH EOL: na
WEATHER
WIND SOL : 1 w
WIND EOL : 4 w
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
24001	22:58	Cycle time line on turn	only recording is nav p1 & p2 - string 2 out of solution d/t turn
24002	22:58	stop line	On line ready to record seismic events

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	24001	10° 44' 42.577"	82° 42' 14.919"
LGSP	24002	10° 44' 41.711"	82° 42' 16.395"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
NA		

P1	Raw Nav File:	P2
OBS.2.p190		OBS.2.p294

Str. @ 6 m

General remarks: Multibeam working this line

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: stop line

NAVIGATION LINE LOG

DATE: 2/29/08

JULIAN DAY: 60

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -136 m
DC EOL : 3120 m
SMG SOL: 4.22 knots
SMG EOL:
FEATHER SOL : 17 °
FEATHER EOL : -27.1 °
MAX FEATHER : -27.1 °

LINE NAME : HG4
SEQUENCE : 17
LINE BRG : 322°

DEPTH SOL: 1848 m
DEPTH EOL: 870.8m
WEATHER
WIND SOL : 5kts
WIND EOL : 17kts
SEAS SOL : 1m
SEAS EOL : 1-2m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : *Pos M V*
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
27157	0:09	FSP	
27205	0:27	Digishot reboot	
28863	10:17	Eol - while in turn to next line	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	27157	10° 46' 48.389"	82° 46' 11.961"
LGSP	28863	11° 24' 04.105"	83° 14' 10.229"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
47	27157	27638
48	27639	28120
49	28121	28602
50	28603	28863

P1	Raw Nav File:	P2
HG4.0.p190		HG4.0.p294

Str. @ 6 m

General remarks: Multibeam working this line

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: Line complete

NAVIGATION LINE LOG

DATE: 2/29/08

JULIAN DAY: 60

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 12.7 m
DC EOL : 373 m
SMG SOL: 4.27 knots
SMG EOL: 3.54 knots
FEATHER SOL : 58.2 °
FEATHER EOL : 8.7 °
MAX FEATHER : 58.2 °

LINE NAME : HG5
SEQUENCE : 18
LINE BRG : 48°

DEPTH SOL: 870 m
DEPTH EOL: 1490m
WEATHER
WIND SOL : 17kts
WIND EOL : 17kts
SEAS SOL : 1-2m
SEAS EOL : 1-2m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : *SeaPath - not working*
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
29066	10:18	FSP string 2 up for turn	
29149	10:49	All guns in water	at full gun volume
29279	11:37	string 3 guns 3 to 10 not firing	
29346	12:02	disconnect string 3	firing 3 strings only
29348	12:02	reconnect string 3	still have problems with string 3 guns 1 & 2 only
29902	15:27	Last recorded shot prior to crash	SeisNet stopped recording lost sps 29903 - 29947
		Lost files - swapped reels	See Syntrak reel log for records recorded
30077	16:28	Turtle in area - reduce volume	firing 1 gun only
30110	16:40	String 1 has air leak	
30131	16:49	Guns shut down completely	reboot digishot
30145	16:54	Start ramping up guns	
30977	22:40	Down to 3 gun strings	
31052	23:10	EOL in turn	PI wants to collect data 1/3 way thru turns from now on

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	29066	11° 24' 07.970"	83° 14' 07.669"
LGSP	31052	12° 00' 00.094"	82° 33' 19.910"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
51	29001	29482
52	29483	29837
53	29840	29840
54	29951	29964
55	30025	30506
56	30507	30988
57	30989	31051

P1	Raw Nav File:	P2
HG5.0.p190		HG5.0.p294

Str. @ 6 m

General remarks: Multibeam working this line

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Complete**

NAVIGATION LINE LOG

DATE: 2/29/08

JULIAN DAY: 60

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : na
DC EOL : na
SMG SOL: 5.0 knots
SMG EOL: 4.2 knots
FEATHER SOL : na
FEATHER EOL : na
MAX FEATHER : na

LINE NAME : OBS
SEQUENCE : 5
LINE BRG : na

DEPTH SOL: na
DEPTH EOL: na
WEATHER
WIND SOL : na
WIND EOL : na
SEAS SOL : na
SEAS EOL : na

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
29001	23:11	shoot to OBS	
29070	23:35	LSP	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	31053	12° 00' 01.857"	82° 33' 13.521"
LGSP	29070	11° 59' 53.909"	82° 31' 43.648"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
58	32011	32081

P1	Raw Nav File:	P2
OBS.3.p190		OBS.3.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: Turn complete

NAVIGATION LINE LOG

DATE: 2/29/08

JULIAN DAY: 60

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 253.5 m	*LINE NAME :* HG6	*DEPTH SOL:* 1506 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : 13.5 m	*SEQUENCE :* 19	*DEPTH EOL:* 1200m	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: 3.56 knots	*LINE BRG :* 80	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: 3.92 knots		*WIND SOL :* 18kts	Gravity meter: none
FEATHER SOL : 62.6 °		*WIND EOL :* 18kts	Magnetonmeter: Geometrics
FEATHER EOL : 10.5 °		*SEAS SOL :* 2-3m	*MAG DEC USED :* -1.35 deg
MAX FEATHER : 62.6 °		*SEAS EOL :* 2-3m	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
33109	23:37	FSP	Still in turn
33353	00:30	Birds to 8m	for large ship that will cross cable
33367	00:33	Birds to 10m	
33374	00:34	12m	
33383	00:36	16m	
33398	00:39	20m	
33409	00:41	tail to 24m	
33424	00:44	mid sectin to 24m	
33437	00:47	all birds to 8m	
33531	01:06	birds to 6m	
34318	03:50	Gun string 2 off	
34365	04:00	LSP	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	33109	11° 59' 49.941"	82° 31' 35.370"
LGSP	34365	11° 47' 26.641"	82° 19' 43.542"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
59	33001	33640
60	33641	34256

P1	Raw Nav File:	P2
HG6.0.p190		HG6.0.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 25 meters

Line Status: **Complete**

NAVIGATION LINE LOG

DATE: 3/1/08

JULIAN DAY: 61

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : na	*LINE NAME :* OBS	*DEPTH SOL:* 1250 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : na	*SEQUENCE :* 6	*DEPTH EOL:*	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: na	*LINE BRG :* na	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: na		*WIND SOL :*	Gravity meter: none
FEATHER SOL : na		*WIND EOL :*	Magnetonmeter: Geometrics
FEATHER EOL : na		*SEAS SOL :*	*MAG DEC USED :* -1.35 deg
MAX FEATHER : na		*SEAS EOL :*	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
35001	04:02	FSP	turn line on time
35094	04:33	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	35401	11° 47' 18.949"	82° 19' 37.098"
LGSP	35094	11° 45' 01.933"	82° 19' 22.947"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File

P1	Raw Nav File:	P2
OBS.4.p190		OBS.4.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 3/1/08

JULIAN DAY: 61

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -1.4 m
DC EOL : -1671.9 m
SMG SOL: 5.08 knots
SMG EOL: 4.4 knots
FEATHER SOL : 52.6 °
FEATHER EOL : 15.8 °
MAX FEATHER : 52.6 °

LINE NAME : HG7
SEQUENCE : 20
LINE BRG : 197°

DEPTH SOL: 1291 m
DEPTH EOL: 2480m

WEATHER
WIND SOL : 11kts w
WIND EOL : 10kts
SEAS SOL : 1m
SEAS EOL : 1- 2m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
36070	04:36	FSP	Still in turn, gun strings 1+4 online
36227	05:27	String 2 out	string 2 on line
36414	06:27		last file of recording with 2ms sample rate
36423	06:30		First file recording with 4ms sample rate
36922	09:13	last recored file reel 65	
36923	09:14	EOL - vessel in turn	Stop line

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	36070	11° 44' 48.713"	82° 19' 28.398"
LGSP	36923	11° 22' 23.997"	82° 25' 27.301"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	85m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
62	36070	36414
63	na	na
64	36423	36904
65	36905	36922

P1	Raw Nav File:	P2
HG7.0.p190		HG7.0.p294

Str. @ 6 m

General remarks: Reel 63 has no data

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: Line complete

NAVIGATION LINE LOG

DATE: 3/1/08

JULIAN DAY: 61

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : na	*LINE NAME :* OBS	*DEPTH SOL:* 2494 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : na	*SEQUENCE :* 7	*DEPTH EOL:* na	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: na	*LINE BRG :* na	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: na		*WIND SOL :* na	Gravity meter: none
FEATHER SOL : na		*WIND EOL :* na	Magnetonmeter: Geometrics
FEATHER EOL : na		*SEAS SOL :* na	*MAG DEC USED :* -1.35 deg
MAX FEATHER : na		*SEAS EOL :* na	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
37001	09:16	FSP	shooting in turn
37368	1119	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	37001	11° 22' 16.394"	82° 25' 21.145"
LGSP	37368	11° 25' 31.199"	82° 21' 16.948"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
na		

P1	Raw Nav File:	P2	
OBS.5.p190		OBS.5.p294	verified

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 3/1/08

JULIAN DAY: 61

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -67m	*LINE NAME :* HG8	*DEPTH SOL:* 2543	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : -5m	*SEQUENCE :* 21	*DEPTH EOL:* 1488	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: 4.92	*LINE BRG :* 320.5°	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: 3.95		*WIND SOL :* 18kts E	Gravity meter: none
FEATHER SOL : -52.5		*WIND EOL :* 17kts	Magnetonmeter: Geometrics
FEATHER EOL : -10.5		*SEAS SOL :* 2m	*MAG DEC USED :* -1.35 deg
MAX FEATHER : -52.5		*SEAS EOL :* 2m	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
38342	11:24	Sol - guns not firing	
38349	11:27	FGSP guns firing	Syntrak first recorded record
39565	18:42	Shut down guns for whale	Down to single gun.

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	38349	11° 26' 01.443"	82° 21' 42.101"
LGSP	39565	11° 52' 31.400"	82° 43' 51.100"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
66	38342	38823
67	38824	39305
68	39306	39570

P1	Raw Nav File:	P2
HG8.2.p190		HG8.2.p294

Str. @ 6 m

General remarks: Birds 19, 20, 21 are running about 8m for this line d/t sea conditions, and reduced vessel speed.

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: Line complete

NAVIGATION LINE LOG

DATE: 3/1/08

JULIAN DAY: 61

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : na	*LINE NAME :* OBS	*DEPTH SOL:* 2494 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : na	*SEQUENCE :* 8	*DEPTH EOL:* na	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: na	*LINE BRG :* na	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: na		*WIND SOL :* na	Gravity meter: none
FEATHER SOL : na		*WIND EOL :* na	Magnetonmeter: Geometrics
FEATHER EOL : na		*SEAS SOL :* na	*MAG DEC USED :* -1.35 deg
MAX FEATHER : na		*SEAS EOL :* na	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
39572	20:06	FSP	shooting in turn
40136	20:51	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	39572	11° 55' 58.751"	82° 46' 45.678"
LGSP	40136	11° 55' 37.218"	82° 50' 03.352"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
na		

P1	Raw Nav File:	P2
OBS.8.p190		OBS.8.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 3/1/08

JULIAN DAY: 61

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -.06	*LINE NAME :* HG9	*DEPTH SOL:* 1487	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : -0.9	*SEQUENCE :* 22	*DEPTH EOL:* 1269	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: 4.81	*LINE BRG :* 227.1°	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: 4.76		*WIND SOL :* 11.2	Gravity meter: none
FEATHER SOL : -53.2		*WIND EOL :* 11.2	Magnetonmeter: Geometrics
FEATHER EOL : 3.6		*SEAS SOL :* 1-2	*MAG DEC USED :* -1.35 deg
MAX FEATHER : -53.2		*SEAS EOL :* 1-2	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
41120	20:57	FSP	Still in turn
41566	23:28		Shut down all guns for compressor leak
41570	23:29	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	41120	11° 55' 18.225"	82° 50' 24.158"
LGSP	41566	11° 46' 58.756"	82° 59' 19.869"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
70	41001	41570

P1	Raw Nav File:	P2
HG9.1.p190		HG9.1.p294

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 25 meters

Line Status: **Line complete**

NAVIGATION LINE LOG

DATE: 3/2/08

JULIAN DAY: 62

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : na	*LINE NAME :* OBS	*DEPTH SOL:* 2494 m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : na	*SEQUENCE :* 9	*DEPTH EOL:* na	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: na	*LINE BRG :* na	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: na		*WIND SOL :* na	Gravity meter: none
FEATHER SOL : na		*WIND EOL :* na	Magnetonmeter: Geometrics
FEATHER EOL : na		*SEAS SOL :* na	*MAG DEC USED :* -1.35 deg
MAX FEATHER : na		*SEAS EOL :* na	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
43001	00:41	FSP	Shoot through turn from HG9 to HG10
43137	01:27	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	41001	11° 42' 54.949"	83° 03' 31.384"
LGSP	43137	11° 39' 47.490"	83° 04' 26.532"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
na		

P1	Raw Nav File:	P2	
OBS.10.p190		OBS.10.p294	verified

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 3/2/2008

JULIAN DAY: 62

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : -7.5m
DC EOL : -481.3
SMG SOL: 4.58kts
SMG EOL: 3.49
FEATHER SOL : -56.9deg
FEATHER EOL : 9.3
MAX FEATHER : -56.9

LINE NAME : HG10
SEQUENCE : 23
LINE BRG : 141.4°

DEPTH SOL: 953m
DEPTH EOL: 2198m
WEATHER
WIND SOL : 11.6kts nw
WIND EOL : 11kts nnw
SEAS SOL : 1m
SEAS EOL : 1m

NAVIGATION SYSTEM USED : C-Nav - Primary
NAVIGATION SYSTEM USED : Pos M V
NAVIGATION SYSTEM USED : SeaPath - not working
Gravity meter: none
Magnetonmeter: Geometrics
MAG DEC USED : -1.35 deg

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	TIME	EVENTS	COMMENTS
44145	01:31	FSP	In turn
48002	13:52	Seis recording stop	missed sp's 48003 to 48018
48191	14:30	Disable string 3	Prepare for turn
48333	14:57	Eol	turn to line HG11

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	44145	11° 39' 28.217"	83° 04' 15.451"
LGSP	48333	10° 55' 13.204"	82° 28' 11.119"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	166.5m

Syntrak Reel#	First File	Last File
72	44145	45108
73	45109	46072
74	46073	47036
75	47037	47961
76	48091	48333

P1	Raw Nav File:	P2
HG10.0.p190		HG10.0.p294

Str. @ 6 m

General remarks: Bird 21 running about 7.5m birds 1 & 2 are deeper d/t reduced speed because of shot spacing.

Posnet remarks: Posnet - not available
COMPASSES KO'd compass 7 ko'ed from sol
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 25 meters

Line Status: Line complete

NAVIGATION LINE LOG

DATE: 3/2/08

JULIAN DAY: 62

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : na	*LINE NAME :* OBS	*DEPTH SOL:* na	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : na	*SEQUENCE :* 10	*DEPTH EOL:* na	*NAVIGATION SYSTEM USED :* Pos M V
SMG SOL: na	*LINE BRG :* na	*WEATHER*	*NAVIGATION SYSTEM USED :* SeaPath - not working
SMG EOL: na		*WIND SOL :* na	Gravity meter: none
FEATHER SOL : na		*WIND EOL :* na	Magnetonmeter: Geometrics
FEATHER EOL : na		*SEAS SOL :* na	*MAG DEC USED :* -1.35 deg
MAX FEATHER : na		*SEAS EOL :* na	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
49001	14:58	FSP	Shoot through turn from HG10 to HG11
49126	15:40	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	49001	10° 55' 11.163"	82° 28' 06.575"
LGSP	49126	10° 55' 39.880"	82° 25' 42.428"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
na		

P1	Raw Nav File:	P2	
OBS.11.p190		OBS.11.p294	verified

Str. @ 6 m

General remarks:

Posnet remarks:
COMPASSES KO'd
Depths KO'd

Posnet - not available
compass 7 ko'ed from sol

SCN MGL0804.2D.8K ver.6
Shot point 20 seconds on time

Line Status: **Turn complete**

NAVIGATION LINE LOG

DATE: 3/2/08

JULIAN DAY: 62

NCS SubSea

CLIENT: National Science Foundation | **SURVEY: 2D Costa Rica / Nicaragua** | **JOB # : 122**

DC SOL : 10.6m	*LINE NAME :* HG11	*DEPTH SOL:* 2227m	*NAVIGATION SYSTEM USED :* C-Nav - Primary
DC EOL : -0.4	*SEQUENCE :* 24	*DEPTH EOL:* na	*NAVIGATION SYSTEM USED :* *Pos M V*
SMG SOL: 3.44	*LINE BRG :* 46.0°	*WEATHER*	*NAVIGATION SYSTEM USED :* *SeaPath - not working*
SMG EOL: 3.59		*WIND SOL :* 11kts n	Gravity meter: none
FEATHER SOL : -47.6		*WIND EOL :* 9kts	Magnetonmeter: Geometrics
FEATHER EOL : 2.9		*SEAS SOL :* 1m	*MAG DEC USED :* -1.35 deg
MAX FEATHER : -47.6		*SEAS EOL :* 1m	

NAVIGATORS : 00:00 - 12:00 => Mike Martello
12:00 - 24:00 => Matt Orme

SP	*TIME*	*EVENTS*	*COMMENTS*
50095	15:42	Sol	
50370	17:34	Guns disabled lgsp	at MMO request - continue to send cloures to digishot
50533	18:49	lsp	

VESSEL POSITION

	SP	Latitude (N)	Longitude (W)
FGSP	50095	10° 55' 45.447"	82° 25' 36.847"
LGSP	50370	11° 00' 54.010"	82° 20' 13.580"

NAVIGATION OFFSETS APPLIED

Ves - CNG	230m
Ves - CS	103m
CS - CNG	127m
Shot Point Reference (Ant or CMP)	cmp
Shot Layback (Dist. Ref. antenna to CMP)	**166.5m**

Syntrak Reel#	First File	Last File
77	50095	50533

P1	Raw Nav File:	P2
HG11.0.p190		HG11.0.p294

Str. @ 6 m

General remarks: Birds 19 & 20 heavy

Posnet remarks: **Posnet - not available**
COMPASSES KO'd **compass 7 ko'ed from sol**
Depths KO'd

SCN MGL0804.2D.8K ver.6
Shot point spacing this line 50 meters

Line Status: **Line complete**