

L-DEO / UTIG HIGH-RESOLUTION MCS R/V LUECOMA

EEL RIVER BASIN EUREKA, CA
15 JULY - 1 AUGUST 1996

J.D. 197 (15 JULY)

2020 Z Left dock, Eureka

- late start (intended 1900) due to blown main seal on ITI winch motor
- symptom = slow leak during dockside test w/ no load
 - re-plumbed case drain line to feed back into powerpack reservoir
 - strong flow (gallons/minute?)
- solution = replaced seal (don't know manufacturer's recommendation) and now returning case drain line to vented in-fill

GM Mountain (LDEO) 12-24
G Fulshorpe (UTIG) 0-12
J Goff (UTIG) 0-4, 12-16
J Ivh (ULSC) 4-8, 16-20
L Schurr (UTIG) 8-12, 20-24
J Diebold (LDEO)
C Guttierrez (LDEO)
P Buhl (LDEO)
S Saustrop (UTIG)

2238 - crossing WP2 (begin line 16) hdg SE and NOT collecting MCS
we gave bridge WPO 1 (line 4) to get out to deep water where
we can maneuver while setting up
give bridge track + w familiarity w/ Nav display
during Transit out to line we stayed on line \pm width of
ship in display (12m? 20m?) @ 12 knots
2nd mate made "seat of the pants" turn @ WP1 and came
back across WP1 heading for WP2 w/in 1 ship width
Seas calm, swell 4-6 feet

W9605B

JD 198 - July 16

0100 still ahead slow near start line 16 (WP 2)
 no soporoid response on gun
 bird batteries installed, self-tested

BIRD #	BIRD SERIAL #	
1	11757	head
2	11766	
3	11784	
4	11868	
5	12720	
6	12740	
7	12829	tail

0340 beginning streamer deployment
 - Carlos still working on gun trigger
 200' rope @ tail w/out buoy/float
 no clean coil b/w 48e/48d as 171 said / we attached
 - removed all old lead
 - added $\frac{1}{3}$ lb ($\frac{1}{12}$ of 4 lb sheet) @ aft end ea. section
 ie, no bird #7
 nothing

BIRD #6 aft of 40e
 BIRD #5 aft of 32e/33a

- forgot to add $\frac{1}{3}$ lb lead fwd of BIRD #5

BIRD #4

- flakey behavior [confirmed depth but wings \neq move]
- put it out anyway

Carlos now has soporoid clicking / was wired wrong in gun controller

- 0700 Fulthorpe + Goff on watch
- 0945 Streamer deployed
We're about 16 n.m. NW of WP2
Turning to run toward WP2 at ~4.2 kt.
J. Diebold evaluating birds
Note: Bird No. 7 (tail bird) is not attached.
- 1100 Janet Yun on watch.
- 1200 Slowing to 3 kt. Will retrieve streamer to add more weight.
- 1240 Streamer ~~is~~ retrieved
- 1555 Added additional weights to streamer
- (48 x 0.3 lb)
Newly weighted streamer now deployed.
Seas have risen overnight - now ~10-12 ft.
- 1625 Standing by to start compressor and deploy air gun
- 1710 Compressor started.
- 1750 Air gun deployed and shooting
- 1755 Stopped compressor to replace a hose
- 1925 Compressor restarted
- 2008 Gun float acts like paravane + tends to pull gun in towards wake + too close to streamer
- will remove fwd chain + then float gun by aft chain only
- if this \neq work will swap + use Norwegian float
Plan to haul streamer ~60m + check for ween

W96058

July 16 JD 198

2143

streamer in + checked fr wear - some not bad
 gun was badly fouled on streamer ~ dozen
 spools ~~that~~ of hose bundles / prob. secured
 early (~ @ deployment) and contributed
 to bad angle on tow

- took ~ 45 min to disentangle

streamer back out full, but tied off on starboard
 limit of A-frame

fuel chain on float removed

Bob'n replaced splice in gun tow cable

2328

streamer still orig to stbd, but now tension
 taken up by line thru. 'stern' bulwarks

put 2-ton swivel on gun - float line

had to shorten Kevlar hose bundle stream mbr
 ~ 4-6 inches / was slack

- not sure how / why this happened

reversed dir, heading for ~ WP2

float / streamer distance ~ same as dist. b/w
 tow pts.

compressor up / inc sp to ~ 4.2 Kn over ground
 - Now count'n NOW = 50 hrs (total; 140 hrs)

W9605B

July 17 JD 199

0000 A/S → 4.8 to 4.9 over ground.
compressor is keeping up for 5 sec up

0810 Crossed WP2 - firing + recording
hdg - 210° ^{overground}
sp 4.8 km
cycle 5 secs
sample 1/2 msec
rec 3 sec
offset 92 ~~km~~ (based on D-wave @ TR1)

0132 Streamer + gun A-OK
birds (interrog ea. 60 sec) generally "in spec" @ 2.5 m
gun approx 3.5 m (will msr next time out)
traces 4, 20, 45 look flaky

0300 wind 10-12 kn fr. NNW; swells 6-8 ft
added 26 gallons diesel fuel to compressor engine

0420 WP3 EOL 66

0500 WP4 SOL 64
came thru gun A-OK: no fouled streamer/gun
Seas calming a bit - wind ≤ 5 kn; seas 4-6 ft
began w/ CTRL-A
reset file ch = 1

Steffen stacking tr 1-24 w/ JEBCO velocities fr. Line 106 (SP 5038)

- seas in amp noise in packets
- c/b corruption fr. Bird interrogation
tho' we synched the bird interrogator
+ the OYO @ start line 66, they
prob drift re: each other
- will synch more often

W9605B

JD 199 July 17

0555 Gary + Greg ~~gave~~ discussed next 12-hr plan w/ Cap'n
 - he's not concerned w/ crab pots S of Eureka
 - can go to 3 mi limit in dark S of there
 - plan strike 64, 62, 60 then dip 25, 29, 33, 37

future schemes:

pass strike to N, then dip to be at NE arm.
 of grid in early daylight, then try long SW
 strike line in board to see how bad
 the crab pot obstacles are

0700 spd overground ~ 5.0 - 5.1
 if keeps up after new bridge watch will request ↓

Fulthorpe / Goff on watch
 On Line 64

0720 Requested that bridge reduce speed.

0820 S.O.G. 4.8 kn.

0830 S.O.G. 4.6 kn.

0835 S.O.G. 4.9 kn.

0901 E.O.L. 64 W.P. 5

0907 Turning toward start of next line

0925 Turned too soon into line. Streamer
 will not be lined up properly at S.O.L.

0931 S.O.L. 62 W.P. 6

(Streamer probably not initially
 parallel to line due to turning difficulty).

0955 Since line began, have been unable to
 talk to bird No. 2.

1015 Bird 2 intermittently communicating.

1115 S.O.G. 4.7 kn

JD 199, July 17

1130 Asked bridge to increase speed (had been 4.6 kt). Now 4.9 kt.

1200 Bird No. 2 continuing to have problems

1300 Speed 5 kt. (SOG)

Seas much smoother than yesterday.

Gentle swell - ~~4~~ 4 ft. \pm

SOG back to 4.9 kt.

1331 E.O.L. 62 W.P. 7

Ran straight for $\frac{1}{2}$ mile beyond E.O.L. before turning to new line.

1403 SOL 60 Started just before reaching W.P. 8

1811 E.O.L. 60 W.P. 9

1845 Breaking off turn to W.P. 10 to shorten streamer for shallow-water operations.

Plan is to shorten streamer by 50 m

However \rightarrow came in 14.5 wraps (our calc of 50m) and could see BIRD #1 forward of gun float - OOPS

The calc. offset of 86 + 6.25 m was based on extrapolating D-wave to 0 in T-X

- prob wrong bc there's a delay btw recording ON and gun FIRE

- will measure this later w/ 'scope

so we put out 20 m from there to arrive at a guess of 30 m offset total

W9605B

JD 199 July 17

2041 crossed $\frac{1}{2}$ nm NW of start line 25 - WP102045 SOL 25 Lat $40^{\circ} 49.057$
Long $124^{\circ} 34.302$

OFFSETS

→ Steffen's offset from T-X was ~~88~~ ⁹² m
 - should have been 42 m

NOW The offset is old - 20 m = 22 m

Note: There is 33 msec delay b/w read ON and gun fire

Captain was concerned w/ small maneuvering room inside
 of WP 11 - was considering EOL early

231³

EOL 25

 $40^{\circ} 43.848$ $124^{\circ} 20.163$

ended b4 desired WP 11 bc of 2 isolated pots
 tried to steady up @ SOL 29 (WP)

2336 SOL 29

 $40^{\circ} 44.428$ $124^{\circ} 19.120$

2341

Bridge says we're steady on / on New display
 shows ship smack on line

0209

EOL 29

 $40^{\circ} 49.318$ $124^{\circ} 34.254$

0217

A/C to begin fight turn to line 33

W96053

JD 200/July 18

0230

SOL 33

 $40^{\circ} 49.579$
 $124^{\circ} 34.190$

0503

EOL 33

 $40^{\circ} 45.328$
 $124^{\circ} 18.880$

Captain chose to break off @ 40m isobath
 - concerned w/ crab pots inside this
 - also some Coast Guard activity nearby

0521

SOL 37

 $40^{\circ} 46.225$
 $124^{\circ} 18.786$

0700

Fulthorpe / Goff on watch
 On line 37

Changing way point numbering system
 - W.P. 16 becomes W.P. 0
 Subsequent W.P.s renumbered 1, 2, 3, ..., etc.

0751

E.O.L. 37

 $40^{\circ} 49.800'$
 $124^{\circ} 34.063'$

(W.P. 1)

0856

S.O.L. 58 (W.P. 2)

 $40^{\circ} 48.166$
 $124^{\circ} 33.100$

(Not completely lined up at SOL)

0900

Steffen has processed line 25 (duplicates
 JEBCO 205).
 Much interference present.

1214

Passing first buoy of 450 m mooring

1217

Passing second buoy of ———

JD 200 / July 18

1303 E.O.L. 58 41° 06.978

124° 24.060

Turning to start line 109

1352 S.O.L. 109 41° 06.778

124° 25.864

1400 Started line at 5.6 kt
Slowing to 4.8 kt.

1425 Deviation from track ≈ 20 m to port

1505 Deviating to port because of crab pots.
Max. deviation ≈ 150 m

1516 Back on line

1532 Deviating again to avoid pots
Max. deviation ≈ 100 m

1539 Back on line

1542 Deviating to starboard,
Max deviation ≈ 200 m

1604 Continued deviations to avoid crab pots

Had to veer off line to avoid crab
pots. Continued shooting and
joined line 14, S. of its

starting point.

1619 Closing on line 14 tangentially

1624 On line 14

1830 Veering to starboard to avoid a
crab pot. Max. deviation ≈ 100 m

1840 Back on line

OYO Clock

Pg 11

JD 200/ July 18

W9605B

1900

took 12 m track for cast to Cap'n
also gave bridge 24" plot of planned grid w/ line nos.

Cap'n OK w/ dip lines upto ~3mi limit night or day
between lines 37 and ~89

- but NE and SE corners of grid m/b problem

Hence we plan in gen'l to concentrate soon on
every other dip line fr. 37 to 89

2059

EOL 14

2 crab pots ~~also~~ (algae covered/old/overlooked)
past by 100 yds to port 5 min by EOL

2108

OYO clock re-synch'd w/ 11x200 GPS

- was 17 secs slow

- had been synch'd y-day

2139

SOL 1

40 38.805 992

124 22.508 713

began W of desired position bc

- 1) Cap'n didn't want to go further inshore
- 2) late set-up of OYO

2147

Maneuvering to avoid crab pots

Also Fishing boat about 1 mile astern

max deviation = 170m NE of intended Line 01

2153

ship back on Line 01

2248

EOL 01

40 41.440

124 29.365

OYO Clock

12

JD 200/July 18

W9605B

2316 SOL 5

 $40^{\circ}42.251$
 $124^{\circ}28.899$

00:08:44 Ship started to deviate off course to the south to avoid obstacles in path. Passed obstacle at 00:11:32. (COG 116°)

00:12:50 Back on line.

JD 201/July 19

0028 EOL 5

 $40^{\circ}39.712$
 $124^{\circ}22.978$

0032 beginning turn to maneuver to start of Line 9

0036 OYO - Mx200 checked for synch - closeuff

0053.48 SOL 9

0205 EOL 9

 $40^{\circ}43.061$
 $124^{\circ}28.587$

0229 1/2 nmi from start next line
 compressor nearly stalled / compressor off line +
 throttling up

0236 A/S \downarrow 3 kn while we assess diesel problems

0240 Thought diesel OK; started line 13 (part damaged WP)
 but diesel died after 5 shots

0245 Ship turning to port, circling to re-start line

JD 201/July 189 W9605B

0250

meanwhile, diesel assessment = either
 a) air temp too cool, compressor not hot enough
 b) fuel level too low, slowing around on rolls
 - topped off (usual fueling time is 300)
 - definitely not unusually low on fuel,
 said 1st Engineer

0307

diesel running smooth w/ compressor

0324:43 SOL 13

40° 44.285
 124° 29.328

began recording b4 set waypoint/ship on line
 at 4.4 kn & coming up to usual 4.8-4.9

0337

passed WP @ begin of 13

04:53:28

EOL 13 40° 41.208
 124° 20.824

tried to plot near trace gather to ORO thermal plotter
 - not much success

@ restart it appears the acquisition config. file was corrupted
 - reloaded cfg file from cold start
 - done in hurry as we had passed the WP for sol 17
 - will have to check tape 177

0519

SOL 17 (late)

0630

passed former end of Line 17 / but we're continuing
 to collect data out to Line 50

JD 201/July 19 W9605B

0633

blasts of lo-freq noise seen on OYO + in lines 60, 25
must be isolated

- Steffen recalls same using an OYO in Antarctica
- John says same in Gulf Mex w/OYO + ITI
- things to do:

ground amp
OYO

gun controller
power supply

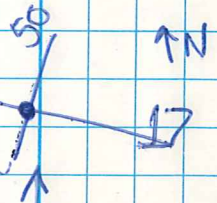
compare w/ bridge log of SSB transmission
separate coils of cables in main lab
correlate inputs w/ sea state + ship's hdg re: seas
turn off bird modem
during turns

passive recording - no gun fire
disconnect leads @ winch

0652

w/ Cap'n
will notify us of next + all SSB transmissions

next wp = $40^{\circ} 46' 16''$ } = end line 17
 $124^{\circ} 31' 62''$ } start line 50



0700 Fullthorpe / Goff on watch.

→ Passed WP, and
0711 Running $\frac{1}{2}$ mile beyond this WP

0717 E.O.L. 17 $40^{\circ} 46.394'$
 $124^{\circ} 32.298'$

0754 S.O.L. 50 $40^{\circ} 46.150'$
 $124^{\circ} 31.701'$

S.O.L. is on a southward extension of line 50
Not properly lined up (course 28° - usually
 20° on strike lines heading N)

JD 201 / July ~~18~~ 19 W9605 B

In addition, speed a bit high -
5.3 kt at S.O.L.

0802 Asked bridge to reduce speed.

Course now 20°

0811 Speed 4.9 kt.

0843 Some significant rolling in this orientation (course 20°).

~ 1019 $40^\circ 57.084'$ Compressor died
 $124^\circ 26.400'$

1025 Turning back to re-survey missed section and continue line, while efforts made to restart compressor will return to 1015 position.

1100 Plan to refuel compressor every 4 hours instead of 8. Rolling may be causing it to shut down even though there is fuel in the tank.

1125:28 Restarted line just S. of 1015 position

1228 Janet Yun noted that file numbers calculated ~~using~~ assuming 180 files per 3480 tape differ from file numbers on DAS screen.

1330 E.O.L. 50 $41^\circ 06.128'$ N
 $124^\circ 22.026'$ W

1357 S.O.L. 54 $41^\circ 06.447'$ N
 $124^\circ 23.044'$ W

1443 Fishing boat ahead on a parallel course. We'll pass ~ 0.1 mi. to starboard of it. Engine noise could affect data. It's doing ~ 2 kt. to our 4.8 kt.

JD 201 / July 19 W 9605 B

1455 Fishing boat abeam, ~ 100 m.

1505 Transmitting on SSB (Bridge)

1511 Fishing boat now $\frac{1}{2}$ mile astern.

1621 Bridge transmitting on SSB again

1625 Checked negative side of streamer power supply at ~ 1610 (P. Bahl)

Seems to have fixed noise problem

1650 Bridge reports going through a riptide
Speed 4.6 kt.1802 E.O.L. 54 $40^{\circ} 47.708' N$
 $124^{\circ} 32.116' W$

1807 SSB Transmission

19:24:24 SOL 43 $40^{\circ} 50.362$
 $124^{\circ} 34.592$

20 00 VHS call; no noise seen on OYO

22:06:20 EOL 43 $40^{\circ} 47.213$
 $124^{\circ} 16.975$ 22:20:58 SOL 41 $40^{\circ} 46.90$
 $124^{\circ} 17.473$ 22:48 Problem Channels as of now:
4, 10, 20, 21, 22, 25, 32, 43, 45

JD 202/July 20

W9605

01:47:31

EOL 41

40° 50.968
124° 39.034

02:13:46

SOL 45

40° 51.844
124° 39.059on line + steady - began recording b4 WP
(-0218 passed WP)

0400

Steffen processed line 54, b4 + after the streamer power supply was grounded (~ file 1620)

- very obvious improvement
- hi-amp, lo-freq noise bursts now gone

(- Craig owes Peter \$1.00 US)

0420

Line 50 processed as well, b4/after diesel stalled

- "BSR" plus inferior seafloor reflection obvious for entire Line 50 up to the time of diesel failure + system re-set

- apparently the G-I timing was off for some time b4 Line 50

- from NOW ON we'll stack at least the 1st tape of each line *@#

0500

Steffen has had little success w/ vel analysis in gas zone
we'll select a line (strike) from center of expected gas zone to see how 'patchy' it is/b

- if continuous, we'll do gas strikes LAST
L36 = "center line"
if gas continuous, do Lines 30-40 LAST

JD 202/July 20 W9605

0547

EOL 45

40° 47.670
124° 16.700

0552

beginning turn

06:09:38

SOL 49

40° 48.507

124° 16.593

began recording a little past (1/4 mi) the
intended WP (bc not steady on) then

0700

Feltkorpse / Goff on watch.

0800

~ 16 m off line.

0830

Having difficulty staying on line
2-3 birds not communicating.
May all be related to current activity.

0940

E.O.L. 49

40° 52.623' N
124° 38.239' W

1012

S.O.L. 53

40° 53.357 N
124° 37.690 WSeas seem higher out at western
ends of lines 49 + 53

1015

Speed high at S.O.L. 5.2 kt.
Now 5.1 kt. Have requested
reduction.

1016

Speed 4.9 kt.

1025

~ 25 m off line (to South)

~~1205~~ 1310Possible gas in water column
on 3.5 kHz records

JD 202/July 20

W9605B

1336 Slight deviation to port (only ~10m)
to avoid a crab pot float

1346 E.O.L. 53 $40^{\circ} 49.162' N$
 $124^{\circ} 15.520' W$

Crab pot near E.O.L. caused slight deviation to starboard.

1407 S.O.L. 57 $40^{\circ} 50.008' N$
 $124^{\circ} 15.112' W$

Had to pass through a line of crab pots. Pots might be becoming more common as we go north.

Streamer not aligned with line at S.O.L.

1450 Speed dropped to 4.4 kt. temporarily due to currents.

1503 Noticed float on air gun has sunk. or been lost

Approx $\begin{cases} 40^{\circ} 51.116' \\ 124^{\circ} 21.043' \end{cases}$

We'll continue line and replace float at E.O.L. Gun depth greater than on other lines.

Saw float during turn - so was off at end of last line

1528 Reducing speed to 3 kt to retrieve ~~replace~~ Gun now continuing on line.

1530 Float is still there, but low in water. Raises issue of whether this could have been happening on previous lines. Gun could have been deeper than expected. Will retrieve and replace float.

JD 202

W 9605 B

1548 Increasing speed to head to W. end of Line. Gun and float on deck. Will replace float and re-deploy gun at W. end of Line 57
Line 57 abandoned.

1607 Will re-shoot Line 57 starting at West end (reverse direction).

1711 Gun redeployed with a Norwegian float. Chain to float shortened by 2.5 ft.
Also let out 1-2 m of streamer as wire mesh sleeve had slipped.
(sleeve to which towing line connected)

Turning to re-shoot Line 57, W to E.

1720 Gun leaking. Have to retrieve.
Will head W at 3 kts.

1813 Gun retrieved. seals leaking.
Will probably replace seals rather than switching to spare gun. Still heading W. at 2-3 kts. A possible problem with compressor seems to have fixed itself. (Had difficulty maintaining pressure.)

1830 Will use replacement gun after all.

1904 Gun deployed. Compressor running.
Commencing turn to start an extended (to W.) Line 57.

1913 winds 18-20 kn. Seas make 4-6' expect winds to build to 30 by night.
Should remain clear but windy for 2 days

JD202/July 20

W9605

1446 Z SOL 57-Reshoot

40° 54.171

124° 37.498

~~File numbers not Reset begin @ 969?~~

1952 Z Hose bundle tangled with tag line.
 Stop Gun & Recording.
 Rewind tape & start over (neel?)

2013:08

SOL 57-Reshoot (For Real) no!

40° 53.717

124° 35.157

a little down the line from
intended start (~1mm)

2015

Charles notes that streamer is being pulled
 apart at tie point. Stop recording &
 shooting. pull in Gun & make new tie
 point on streamer ~2m down from previous
 tie point.

Redo 57 Reshoot again!

Maintained all 48ch. thru the pull. tied off stretched section
 of cable w/ braided nylon line that should take the
 strain instead of the cable

2145

back up to 4kn, maneuvering back to line (have been
 set South) and once steady on will deploy gun,
 again at 4kn w/ lots tension on hose bundle
 to keep from fouling w/ tag line

2240

SOL 57-AGAIN!

40° 53.659

124° 34.705

despite best effort, gun & float went out < 2 ft h. streamer,
 at times along streamer. hoist tag fouled again; perhaps
 we should have MORE slack in tag line

JD202/July20

W9605

2303

passing old WP intended as start of line 57

2350

as many as 10 ch. are bad. must anticipate
 need to use spare streamer
 - checking doghouse setup/supplies

2355

bridge advises that gun will prob X streamer
 on BOTH stbd + port turns
 - what to do?

A) Peter thinks stbd turns w/b OK +
 suggests $2 \times 270^\circ$ turns for every
 reciprocal A/C

B) DR - pull gun $\geq \frac{1}{2}$ way in (@ 3 km)
 b4 turn / pay out when steady on

1:51:12

EOL 57

$40^\circ 50.023$
 $124^\circ 15.195$

ended early to avoid crab pots (dead end)
 and shorten up on gun tag line

turned to port

will think carefully if this is better than
 $\downarrow 2$ turns to starboard

This needs 3 people

02:14:17

SOL 61

$40^\circ 50.832$
 $124^\circ 19.923$

02:19

Gun all the way out.

JD 203/July 21

W9605

05:02:47

EOL 61

40° 54.108

124° 32.157

← Stbd turn towed line

05:34:40

SOL 63

40° 54.914

124° 31.612

we've decided to do "neckhack" grid of dip
lines for next 24-36 hrs
— all turns to stbd.

0700

Fulthorpe / Goff on Watch
(Mountain, Fulthorpe, Diebold)

0730

Discussed possibility of changing
streamer. First tape of 57 R (Q.C. plot)
is very noisy.

We've started the process of getting
ready for a change. (Birds were
already being charged.)

Will have Buhl & Gutierrez investigate
further when they get up at 1300

0814

E.O.L. 63

40° 51.385' N

124° 15.236 W

Ended line before W.P. Not going
landward of 50 m contour because of
crab pots.

0830

S.O.L 59

40° 50.574' N

124° 15.819' W

Started W. of actual W.P.
Streamer might not be aligned
for 1st 2-3 minutes.

0900

Bird 4 showing 10 m depth.
Snagged on crab pot??
J. Diebold said it's been showing
large depths for last couple of lines.

JD 203/July 21

W9605B

- 0930 15-20 m S. of line.
- 1018 Asked Steffen to stack most recent complete line (63) to evaluate streamer performance.
- 1022 30-40 m S. of line. Sea state increasing toward seaward (W.) end of line 59.
- 1045 Speed fell to 4.3 kt. Asked bridge to increase speed. Heavier seas and currents are contributing to variations in speed. (Wind speed ~23 kt)
- 1100 Yun on watch.
- 1110 E.O.L. 59 $40^{\circ} 50.574' N$
 $124^{\circ} 32.248' W$
 Perhaps 20 bad-problem channels
- 1211 S.O.L. 67 $40^{\circ} 56.548' N$
 $124^{\circ} 30.786' W$
 Vessel rolling nicely!
- 1242 Perhaps as many as 15 bad channels
 Seas 6-8 ft.
- 1402 GPS "jumped" (position of ship on navigation screen moved) (Reported by bridge).
- 1445 E.O.L. 67 $40^{\circ} 52.310' N$
 $124^{\circ} 15.273' W$
- 1455 S.O.L. 65 $40^{\circ} 51.814' N$
 $124^{\circ} 15.260' W$
 Streamer not aligned after sharp turn until ~ 1458

JD 203 / July 21 W9605B

1500 Scherr on Watch.

1549 speed at 4.4 kt. Increasing

Discussed switching streamers with P. Buhl. Getting power to van and weather protection of cables and streamer & connection entries to van are an issue. P. Buhl will inspect van and consider options.

Seas lower at inboard ends of lines
 ~ 4 ft swell.

1716 Higher seas - 6-8 ft - at W. end of line. Perhaps a little lower than at ~~end of~~ W end of 67.

1731 EOL 65 $40^{\circ} 55.744' N$
 $124^{\circ} 31.270' W$

1758 Changing paper in 3.5 kHz

1825 S.O.L. 71 $40^{\circ} 58.218' N$
 $124^{\circ} 30.088' W$

1830 Ship rolling - water lift compressor causing its speed to fluctuate.
 Seas OK.

21:07:44 EOL 71 $40^{\circ} 52.934$
 $124^{\circ} 14' 176$

- early/must avoid barge in tow + 50m water depth

JD 203/July 21 W9605

2110 looking into moving all electronics in doghouse into main lab + set up spare streamer

big concerns/worries running from doghouse:

- 110V, 30amp line feeds into doghouse 6" off deck
- communications
- A/C - does it work?
- overhead weatherproof
- V's cramped

used deck cable + its plenty long enough to reach lab
 must move 3 boxes in rack, gun controller (easy)
 and v large patch panel (hard)

21:36:23 SOL 69

40° 52.972
 124° 15.870

- started late, waiting to get head on tug w/ tow
- decided to maintain CSE on Line 69 but
 A/S \downarrow 4.5 Km

- in 1/2 hr will see what CPA is/may have to A/c

2208 Tug continues to approach / we've maintained CSE, but A/S \downarrow 4.4
 will have to break off in another 10 mins or so

22:20:06 breaking off Line 69

40° 54.280
 124° 20.027

22:37:52 re-summing Line 69

40° 54.223
 124° 20.558

not a good overlap;
 probably
 500m gap
 (not even co-linear)

JD 203/July 21

W9605

2250

back on intended
line 6940° 54.757
124° 21.736

wind 20kn, swells 6-8ft,

JD 204/July 22

00:18:47 EOL 69

40° 57.406
124° 30.476

00:58:47 SOL 75

40° 59.697

124° 29.892

steady on line. began recording b4 scheduled WP
(Xd WP @ 01:04:00)
swells 6-10ft

03:46:08 EOL 75

40° 53.593

124° 13.831

crab pots / 50m

03:55:54 SOL 73

40° 53.367

124° 14.367

0400

as predicted by Carlos on this hdg (298° swells off
the gun tag line + hose bundle
unraveled itself) (std quarter)

06:35:23 EOL 73

40° 58.856

124° 29.751

0700

Plan: @ end line 77 run deck cable to Mikeham streamer
+ hook to OYO. do conductivity + temp tests
if NG, reconnect IT1 to OYO + resume
if OK, pull IT1, pull gun, 12 kts to breakwater
- move IT1 reel under tower of lee shore

JD204/July22 W9605

- then back out to S end of grid (~ line 16)
- deploy Mitcham streamer + run strike lines in mild swells of inboard grid area

0700 Fulthorpe / Goff on watch.

0715 S.O.L. 79 $41^{\circ} 00.559' N$
 $124^{\circ} 28.902' W$

Streamer might not be completely aligned until ~ 0719.

0745 Significant rolling.

0748 Pushed by current - speed reached 5.3 kts slowing down.

0758 ECDIS (Electronic Chart Display) froze for 2-3 minutes. (a.k.a. "TRANSAS") CRK. now.

0941 EOL 79 $40^{\circ} 54.994'$
 $124^{\circ} 15.073'$

Ended line early (at 60 m water depth) to avoid encountering crab pots in darkness

0953 SOL 77 $40^{\circ} 54.739'$
 $124^{\circ} 15.620'$ Streamer probably not aligned until ~ 0957
Also not quite on line at S.O.L.

1100 Yun on watch replacing Goff

1205 T. Diebold thinks air gun is leaking and that we should switch to other gun (the original gun we started with). ~~Have not~~ Compressor seems OK. Problem seems to be with gun.

JD 204 / July 22

W9605B

1217

E.O.L. 77

41° 00.164' N
124° 29.150' W

Slowing to 3 kts. to pull in gun.

1245

Air gun on deck. Cables to gun had ~~trapped~~ around winch wire. They were ~~intangled~~ after some effort. Maintaining course, approximately along an extension of line 77.

P. Buhl + J. Diebold looking for connectors compatible with OYO to use with new streamer system. Existing connectors not compatible with our OYO.

Wind has died down, swell ~~4-10~~ ⁴⁻¹⁰ ft.
↑

1315

Connector found, but must be soldered (100 connections). Since this will take 2 hours, we intend to redeploy gun after maintenance and shoot the next line.

1325

Have informed bridge that may shoot another line, which would be 83, extended to seaward (NW), before we can test spare streamer and bring in the ITI streamer.

1358

Gun redeployed - same one as have been using. Have not switched guns. J. Diebold was key person and he needed to sleep.

1421

In turn toward extended line 83.

JD 204 / JULY 22

W9605B

1436:55

SOL

83

41° 03.851' N

124° 34.638' W

1300

Schuer on watch.

1314

Captain said we can enter and leave Humboldt Bay at any time between 11:00 AM and 19:00 ~~h~~ (LOCAL), (1800 - 0200 GMT).

∴ We can still consider a streamer change today. Daylight may be a problem, however.

1526

Bridge reports that they are going to turn over the windlass. Might create noise.

1538

Windlass work ends.

1728

Speed to 4.8 kt. Bridge had trouble keeping speed down (had been 5.1 kt. for some time (not sure how long - perhaps 20 min. +)).

1750

Buhl + Cuatrecasas have finished rewireing one of two connectors between spare system and OYO.

1801

J. Diebold in lab. suggested that gun in case, which uses more air, may not be the bad one. Perhaps the first gun, which used less air, didn't so because it had a problem. In that case, we'd only get full power out of guns by shooting at 6 sec. intervals (instead of current 5 sec) and at 4.2 kt, (instead of current 4.8-4.9).

JD 204 / JULY 22

W9605B

1811:34

E.O.L. 83

40° 55.702' N

124° 14.300' W

Turning before E.O.L. in N 55 m water.

1823:45

S.O.L. 81

40° 55.471' N

124° 14.855' W

Starting W of ~~start point~~ ~~start~~
 planned S.O.L. because cannot come
 within 55 m contour.

Had to start on a new line as
 there's still another connector to rewire

Test of the single rewired connector
 during turn inconclusive due to a short
 circuit (?) elsewhere in spare equipment.

21:49:25

EOL 81

41° 03.101

124° 33.871

guns: "B" in water "A" on deck

↓
 compressor builds to 1750 psi

→ had a leak
 but fired 5 secs
 @ 1950 psi

either A had an air foul (e/b hold on fr. Thompson)
 or compressor really can't fire 5 secs
 or compressor has prob

hence during turn will keep firing B but @ 6 secs

Mitcham streamer

fastest OK on scope
 during turn will connect to OYO

JD 204/July 22

W9605

22:17:35

SOL 87

41° 03.966

124° 32.565

testing during turn =
 compression kept up @ 6 sec \therefore gun B is OK
 + gun A prob fouled

↓
 nonetheless, to make miles, we'll continue
 @ 5 sec / 4.9 Kn even if 1750 psi

Mitcham ch. 1-24 tap test A-OK/no open ch.

↓
 not sure if 1 is head or tail, though

will make up next 61-pin connector during
 this line and connect/tap test at
 next turn

22:18

during turn SF $\downarrow > 1.0$ sec

tried delay w/announcing driven and gauged
 now set back to 0 delay

JD 205/July 23

0031

what do we lose by shooting gun B @ 1750 psi?

$$\sqrt[3]{2000} / \sqrt[3]{1750} = 1.0455$$

vol @ 3 psi \sim peak pressure

2000 psi has
 4 1/2% greater
 peak pressure

01:38:30

EOL 87

40° 56.369

124° 13.628

during turn did tap test on all 48 Mitcham ch. -
 -OK; only unknown = 1) polarities 2) head vs tail

01:49:06

SOL 85

40° 56.090

124° 14.119

JD205/July 23

W9605

0238

4mins lost when tape 476 ended and 477 was ready but not loaded

04:20:25

EOL 85

41° 01.785

124° 28.525

ended by "original" WP

04:42:41

SOL 91

41° 03.141

124° 28.177

0448

Xing WP; SOL could have been a little off line/check

0602

noticed OYO hung/restarted // prob hung at start 489

0607:39

rebooted/1st shot/tape 489last good shot was end of 488 / = ~~0557~~

0700

Fullthorpe / Goff in watch

0709

Informed bridge that we wanted to return to 0530 position to re-survey section of line 91

0714

OYO problem was related to right-hand 3480 drive. Cleaning drive.

0730

Plan to use UTIG 3480 drive to replace defective drive.

0800

apparently the DAS hung up w/ write errors to drive
 the right-hand unit bc forcing DAS to write
 to drive 1 first was OK.
 brought UTIG drive to end of lab + cabled it (daisy chain)
 to back of twin 3480's; then w/ drive as

JD 205/July 23

W9605

SCSI #1 unit (only) and UTIG drive SCSI #5
 we powered up + VOLTAGE we were back in business
 - checked and both drives will write 180 files

meanwhile we're getting the ship back to break-off
 pt minus 15 mins.

0913 Re-starting line 91 near 0530 position
 $41^{\circ} 01.391' N$
 $124^{\circ} 23.928' W$ } superseded by

0916 Both tapes unloaded

0917 Recording started. Resumption of
Line 91
 $41^{\circ} 01.239' N$
 $124^{\circ} 23.434$ ←

Tapes unloaded because drive had been
 left set up to record only 10 shots
 in test mode.

So far so good this time. Should
 still have overlap with data in tapes
 484 - 488.

∴ Resumed line nearer to 0540
 position than 0530.

Using UTIG drive to record means that
 we've lost our onboard processing capability
 ∴ No QC plots being produced from first
 reels now.

1057 E.O.L. 91 $41^{\circ} 57.431' N$
 $124^{\circ} 14.001' W$

Turning to run straight and retrieve
 gear. Course 300°

1120 Gun on deck. Slowing to
 2 kts to retrieve streamer

JD 205 / July 23

W9605

1157

Streamer and gun in; increasing speed for transit.

Bird 4 - the one that was showing large depths - had sustained some damage - something must have become caught on Bird 4 and later fallen off.

1230

Reaming south at 13 kt to clean out carbon from engines.

Captain informed me that it was calm enough to move ITI streamer out of the way while at sea. It will not be necessary to enter Humboldt Bay.

1345

ITI streamer has been moved.

1600

Have put batteries in birds for alternate streamer and programmed birds for 8 ft. (≈ 2.5 m).

Streamer winch is hung up. It won't turn (starts to turn, but hangs up). In one direction, control valve sprays hydraulic fluid in considerable volume.

We ^{may} attempt to turn the reel manually with a "come along" to get it started. (Boutswain assisting). - Not necessary - it can be rotated by hand.

J. Diebold & C. Guttierrez are replacing the control assembly with that from the ITI streamer winch.

Ship meanwhile doing "race tracks" in vicinity of South end of Line 20.

JD 205/July 23

W9605

1711

G. Mountain has spoken with streamer

contacts:

- Called Geoquip @ 1550-ft msg
- called Mitcham who said call Geoquip
- Geoquip called back @ 1650
 - advised keep plumbing open loop
 - return AND cable chain should return to bank
 - if leak, check O-ring on 1st valve below retained plate held by 2 Philips screws

Diebold removed Mitcham controller from winch

- The winch then c/b turned by hand
- will check O-rings later
- replaced w/ controller taken from 171 winch
- worked ok

1738

Ship running at 12 kt 330 from
S. end line 20. Will run back at
3 kt to deploy streamer.

1751

Slowing to 3 kt and coming round
to deploy streamer.

1757

On course 330. Deploying.

1908

Streamer deployed. 8 pairs of
bird collars but only 7 birds.
No bird on forward pair of collars.

2000

Carlos lengthening Kevlar strain mbr of gun tow
powered up OYO w/ LDEFD + UTIG 34805
coming up to 4.2 kn SOG

2030

fleet @ ~100m ahead of front of ch 1
towing @ 4.2 kn; planning about new bird controller
 - seems too good for time set @ 8ft
 and after 20 mins they reach 8 ± 0.2 ft
 - wing angles ~ -15 head, all wot ~ +10-18

JD205/July 23

W9605

- 2100 noise test on streamer = all/about 48ch, correct polarity
- 2130 compressor buildup, gun in/heard/race offset s/b ~ 57m
- 2140 compressor stalled / not sure problem / restarted rough
- not warmed up?

- 2215 Peter looked @ OYO shot gather
- thinks streamer >> 8ft
- not sure in this shallow water (55m)

Captain advises long-liners working in Eel R. Canyon
to our west
≠ go time for deep water source test!

- 2220 gave WP to bridge for original LINE 01
- ask steady on line 1 Inmi SE of west end
- will then shoot/record NW, extend to
~ 400m WD for source/streamer test
- if OK, turn 540° to line 46
- if NG, prob takeoff weight

- 2314 1 Inmi fr. end of line 1
- 6 sec shot
- 15m spacing
- 4.8 knots

23:17:31 SOL 01E 40° 41.116 beginning w/ DAT
124 28 451 to allow 5 sec fms

23:36 had to break line to get DAT out of DAS

23:39:38 resumed recording on 3480, toggling
btw LDE0 + UTIG

23 59 06 EOLE1 40° 42.576
124° 32.395

JD 206/July 24

W9605

0020

bind display said near $\sim 75-82$ ft
 - but sea floor ^{depth} reflects shows 15m (~ 49.2 ft)

set birds to "SURFACE"
 angles went to 18° (all)
 and head stopped at 47 ft
 tail " " 17 ft
 - sea floor refl showed shoaling

will shorten lead-in } How
 AND } MUCH?
 remove lead

0035

compass on/off / gun in / beginning Port turn (270°)
 to line up w/ line 46
 - will re-ballast after turn / dinner

0125

Started taking in streamers.
 Counting leads to take off weight.

0215

$40^\circ 44.87$
 $124^\circ 31.90$

Streamer in all the way.

on the way out we moved birds just 2 collar (had started one collar too early last time) AND removed about $\frac{1}{2}$ the weight
 - preferentially took off tape-less "3/4 doughnuts"

as each bird went in for, stopped when ~ 30 ft off,
 connected + did following:

- A Set new bird wing $z = 0^\circ$
- B Set previous bird depth to 8 feet
- C waited ~ 2 minutes to see stable tower
- D all this @ 2.5 - 2.8 knots

JD206/July 24 W9605

0525 streamer in + towing / new tow point / offset = 25m

0540 gun in

0550 compressor findup

06:25:40 SOL 46 $40^{\circ} 55.652$ (mid way along line)
 $124^{\circ} 25.856$ initial tests show D-wave offset = 24m
@ 4.8 kn SOG, water speed = 4.6 knots
birds = 9, 7, 8, 8, 8, 8, 26 ft?

0700 Feltthorpe / Goff on watch

0705 Bird 7 now responding to instructions.

Bird depths 8, 7, 9, 9, 9, 6, 9 ft.

0742 COG 20° Streamer bearing is 180° from COG,
i.e., directly along line (46).Fishing boats sleeping near E.O.L.
May have to turn early

0828

E.O.L. 46

 $41^{\circ} 04.760' N$ $124^{\circ} 21.460' W$ Stopped short of E.O.L. because of
fishing boats

0849

S.O.L. 42

 $41^{\circ} 03.849' N$ $124^{\circ} 20.690' W$ Started south of N. end of line to avoid
fishing boats (turned onto line early).

JD 206 / July 24

W9605

0932

Ship off line ~ 20 m. Seems to be having difficulty staying right on line.

Moderate swell, but conditions not particularly bad. Possibly currents. (No wind).

Bridge has new W.P.s.

0948

Bird depths: 10, 8, 6, 6, 8, 10, 10 ft.

1100

Bird depths: 10, 3, 6, 6, 8, 11, 11 ft.

1123

streamer angle 168° relative to COG. (200°).

1235

Bird depths: 8, 5, 5, 7, 8, 8, 9 ft.

1336

E.O.L. 42

$40^\circ 42.053' N$

$124^\circ 31.227' W$

Making long right-hand turn to start line 3. Made turn extra long to allow fishing boats to clear area.

Will start line 3 on an extension to west.

1417

Fishing boat still in position preventing ship from lining up.

1422

Making a ^{shallow} (20°) turn to port to get on line. Have a watch out to check on interference between gun + streamer. Seems O.K. though close (2-3 m?).

1433

S.O.L. 3 (extension to W).

$40^\circ 42.675' N$

$124^\circ 31.351' W$

JD 206 / JULY 24

W9605

(n2°)

~~0224~~ 1501

There is a slight dog leg at W. end of Line 3 proper, as the extension to Line 3 was not properly lined up with Line 3.

The dog leg is at $40^{\circ} 41.84' N$
 $124^{\circ} 29.14' W$
 (W. end of original Line 3).

1558

E.O.L. 3

 $40^{\circ} 39.680' N$
 $124^{\circ} 23.266' W$

Continued shooting for ~ 2 minutes following start of turn at E.O.L.
 E.O.L. is at 1558 - before last shot.

1635

Excellent conditions, minimal wind.
 Foggy, however.

1644

S.O.L. 18

 $40^{\circ} 39.473' N$
 $124^{\circ} 24.878' W$

1653

Bird depths: 11, 10, 10, 10, 8, 8, 7 ft.

1736

Fishing boat crossing bow ~ 0.4 mi. ahead.

1807

Bearing to tail float relative to C.O.G. (020°) = 176°

Bird depths: 9, 8, 9, 8, 9, 8, 7 ft.

2000

Snortboat drill

birds = 7, 8, 5, 6, 5, 9, 9 ft

2033

tail buoy 172° relative / ship hdy 16°

2108

birds 9 9 11 9 8 6 8

JD206/July 24

W9605

2115 Bridge called down to say we're entering a large field of crab pots. May have to do some maneuvering.

2118 Making slow turn to starboard around crab pots. Turning to port.

21:34:19 EOL 18 $41^{\circ}00.825$
 $124^{\circ}16.321$

broke off to avoid pots; swinging way to port - gant cable OK
then stbd and Xd over line 18, running parallel to a seaward of line of pots; plotting track so that later dip lines c/b run in dark w/o visual sightings of pots

2204 Bridge called to say line of pots has ended / when tail buoy has passed last pot will turn more to East to get onto Line 10 ASAP

2217 beginning stbd turn to come onto line 10

22:28:26 SOL 10 $40^{\circ}58.371$
 $124^{\circ}13.359$

began recording even tho tail buoy still not astern
birds 88 99 97
MANY gas vents/seeps (?) in last 1 1/2 hrs (seen on 3 SKH₃)

22:35 tail buoy ~ astern

2333 birds 88 77 888 ft

2340 tail buoy 7° west of COG
wind 0-5 knots, swell 2-4 ft from WNW; fog streamer steady @ 7-10 ft. w/ 5° feather

OYD DATE
(NOT TIME)

43

JD 207/July 25 W9605

01:45:33 EOL #10 $40^{\circ} 43.554$
 $124^{\circ} 20.578$ End line due to crab pots in way.

01:50 check Time and Date on OYO after line 10.
 Time OK, GT Date 07-23 not 07-25.
 Reset it. This is an OYO problem - apparently
 does not update Day when in acquisition mode.

02:02:19 SOL 19 $40^{\circ} 43.164$
 $124^{\circ} 22.284$

line 10 ended abruptly w/ 3+ crab pots + 1/2 mi visibility
 in fog

switched to dip line 19 / won't run pot-infested
 lines in this area at night or in fog if possible

02:09 tail buoy ~ astern (relative 178°)
 birds 9 8 7 7 9 10

03:54 passing intersection w/ line 56 (next line)

03:56:42 EOL 19 $40^{\circ} 47.246$
 $124^{\circ} 33.316$

making 54° starboard turn to intersect + begin line 56

03:59 beginning turn

04:20 diesel RPMs dropped / John D tweaked

04:46:32 SOL 56 $40^{\circ} 47.180$
 $124^{\circ} 32.966$

perfect 54° turn, but compressor totally stalled +
 dumped air 1/2 mi from intended SOL

JD 207/July 25

WP 605

- 0457 passing thru "original" WP for defining Sndls 56
- 0700 Feltthorpe / Goff on watch
- 0839 Bird depths: ^① 10, 10, 10, 9, 9, 7, ^② 6 ft.
- 0904 E.O.L. 56 41° 06.778' N
124° 23.555' W
- 0934 S.O.L. 52 41° 06.272' N
124° 22.525' W
Streamer may not be aligned at S.O.L.
- 1029 Compressor down
- 1034 Resumed shooting
Decided not to circle back. Have fairly dense coverage in this region.
- 1107 ~~Occasional~~ Bursts of noise, channels 12-17.
- 1137 Bearing to streamer tail float relative to C.O.G. (200°) is 176°
Bird depths: 8, 7, 7, 6, 7, 8, 9 ft
Bird: ① —————→ ②
- 1230 ~~Occasional~~, frequent bursts of noise, channels 26-33.
- 1342 E.O.L. 52 40° 47.309' N
124° 31.724' W
Long turn to right (270°)
- 1414 S.O.L. 23 40° 47.641' N
124° 31.722' W

JD 207/July 25

W9605

1601 E.O.L. 23

40° 43.833' N

124° 21.407' W

Ended line early to avoid crab
pot.

1612:42

S.O.L. 21

40° 43.553' N

124° 21.978' W

Line started seaward of E. end
because of crab pots inshore.

Streamer not straight at S.O.L.

1713:28

E.O.L. 21

40° 45.708' N

124° 27.947' W

Will go to S.O.L. 15 by means of 2 x
270° right turns.

1811:34

S.O.L. 15

40° 44.281' N

124° 28.979' W

31
19:20:45

EOL 15

40° 41.469
124° 20.274

turning to stbd

winds 0-5; 2-4 ft swell; fog w/ 3 mi visibility

turning to Line 11, passing Thump 1/2 mi fr. start
NO CRAB POTS VISIBLE

19:50:13

SOL 11

40° 40.873

124° 21.192

19:52

tail buoy 160° relative

19:53

birds 8, 8, 9, 9, 9, 7, 10

20:50

tail buoy bearing 174° relative (6° stbd of intended track)
ship steering 296° T to make 296° T

JD207/July 25

W9605

21:08:20

EOL 11

40°43.605
124°28.687

21:11

beginning two 270° turns to starboard.
- going long way to avoid fouling cables

22:07:26

SOL 7

40°42.726
124°29.931

2209

passing thru WP of intended Line 7
tail buoy 178° relative (= 2° to starboard)
birds 7 6 8 10 9 9 6

23:07:45

EOL 7

40 40 594 } lost gun at on gun
124 23 092 } broke off; pulled gun

2317

gun in; maintain 3 kn, turn to port
and get to line 14 (near pots) and then
hope ~~gun~~ other gun is ready + in water

2330

swapped guns on deck

2347

Gun going back in; continuing gentle
turn onto line 14.

2352

gun in water, compressor coming up

2355

SAME PROBLEM

JD208/JULY 26

0025

request bridge loop to starboard (pots to port)
and get us back on line 14 in ~ 45 mins- meanwhile rebuild 1st gun / swap guns,
checking solenoids of latter

0040

after disentangling tag/hoe cables, gun on deck
- both solenoids click OK

JD208/July 26 W9605

0055 rebuilt gun connected on deck / testing solenoids / ~~XXXX~~0125 original gun, now w/ new O-ring on shuttle and
solenoid from other gun, in water
- test fired / visually OK

0130 A/C, A/S to return to line 14 @ 4.8Kn.

01:50:32 SOL 14E 40° 40.430
124° 23.227bridge says buoy ~ 10° leading
- hard to pick up / wind 10-15Kn
- seas 2-4, swells 3-5 ft

binds 9 7 9 8 9 8 10

0154 tail buoy 174° R (6° to starboard of ~~intended track~~)
@ 3150 ft
= 960m (f. Radar antennae)03:20:32 EOL 14E 40° 33.494
124° 26.569

thick fog; winds 12-18Kn; swell 4-6

03:43:10 SOL 18E 40° 33.899
124° 27.534

04:54 passing thru WP defining end of Line 18

05:00:51

EOL 18E 40° 39.921
124° 24.605

beginning star turn

GPS jump

48

JD208/July 26

W9605

05:35:15

SOL20

40° 39.430

124° 25.527

0700

Fulthorpe / Goff on watch.

0924

Have veered ~ 40 m off line
 Another vessel is approaching head
 on. Initially unable to contact
 it.

0925

Have contacted vessel and will
 return to line. ~ 60 m off line.
 Speed only 4.4 kts - increasing.

0951

COG 020°, Relative bearing to tail
 float from COG = 177°

Bird depths: 11, 7, 4, 4, 5, 7, 8

(1) —————→ (7)

Will turn soon, ending line early
 to avoid crab pots.

0959

E.O.L. 20

40° 59.587' N

124° 15.843' W

(Ended line early to avoid crab pots)

1023

S.O.L. 16

40° 58.737' N

124° 15.030 W

1141

swell higher during this watch
 so far than in last 0700 - 1900 Watch.
 $\sim 4 - 6$ ft. (Hard to tell in darkness)

1202

GPS jumped.

1218

Asst. Engineer reported 2 Magnitudes 5
 earthquakes offshore from Crescent City
 One yesterday (i.e. Thursday) and one
 the day before (this from a news broadcast)

208 / July 26

W 9605

- 1235 Fishing boat crossed bow and passed down starboard side at 0.4 n. mi. Could cause interference. Deviated slightly while keeping an eye on boat.
- 1249 starting to get light outside.
- 1349 Previously mapped crab pot ahead. Veering off line to pass it on ~~Starboard~~ ^{Port} side.
- 1352 Crab pot on port beam. Maximum distance off line ~ 160 m.
- 1355-1400 Made fairly sharp turn to get back to line. Streamer may not be straight.
- 1402 Ship back on line, but streamer not yet aligned.
- 1408 Bird depths: 7 9 8 7 9 10 11
① - - - - - → ②
- 1421 Deviating again to starboard to avoid a previously noted crab pot.
- 1423 Crab-pot abeam (to port).
- 1431 Back on line. Streamer may not be aligned yet.
- | | | |
|-----------|-----------|----------------|
| 1443 : 21 | E.O.L. 16 | 40° 39.909' N |
| | | 124° 24.566' W |
| 1524 : 45 | S.O.L. 24 | 40° 39.960' N |
| | | 124° 26.482' W |
- CYO did not reset. Started line on file 2602 instead of file 1.

208 / July 26

W 9605

1550 Fishing boats ahead and astern (astern of tail float). May create noise.

1805 NB. J. Dædd increased filter frequency on Lines 20, 16 + 24, removing low-frequency noise.

19:52:22 EOL 24 $41^{\circ}00.380$
 $124^{\circ}16.671$
 Birds 11 8 9 9 9 9 8

20:50:44 SOL 89 $40^{\circ}57.653$

2056 tail buoy 3° to stbd of intended track
 $124^{\circ}15.547$
 Birds = 13, 12, 8, 7, 6, 8, 8

2200 polypropylene tarp on streamer frayed + parted
 - should've had more tape under the head end
 - now towing off the winch, amidships
 - must repair @ end of line

2303 X'd WP end line 89
 tail buoy 7° stbd of COG
 Birds = 7 9 7 8 8 8 6

23:06:07 EOL 89 $41^{\circ}02.726$
 $124^{\circ}28.240$

steady on to replace streamer tarp.

2328 new tarp complete / beginning turn to next line

209/July 27

W9605

0000 on line 95; will start OYO when tail buoy - astern

00:05:15

SOL 95

41° 04.842

124° 30.009

tail buoy 10° stbd of COG

birds 10 8 10 11 11 7 7 ft.

0048

ship passing btw guard buoys over mooring Y450

41° 03.140

124° 25.870

0050:00

41° 03.047

124° 25.660

midpt streamer passing btw buoys

tail buoy came ~160 N of southern buoy

02:46

EOL 95

40° 58.423

124° 14.453

This was pos @ 2:48

shot 1620

ended in very thick fog (200 yds) now ind
concerned w/ pos exact pos known to N + S
of here, pos along the line btw

03:00:00

SOL 93

40° 58.264

124° 15.082

03 36 41

break-off line 93

40° 59.766

124° 18.774

= shot 360

fishing boat won't come up on radio and
won't move; circle; resume line

0348

during turn compressor/diesel stalled

- fluctuating fuel pressure again
- fuel level OK

04:14:46

resume line 93

~ 1/2 nm overlap

~~shot 360~~

40° 59.571

124° 18.262

= shot 367

JD 209/July 27

W9605

04:19 passing thru break-off pt
 = shot 413
 tail buoy 7° stbd of COG; birds 10 9 9 8 9 9 9

06:42:31 EOL 93 $41^{\circ} 05.341'$
 $124^{\circ} 32.313'$

4 turn: tail buoy 175° (5° stbd of COG)
 birds: 10 7 8 8 9 10 8

0700 ~~1000~~ Fullthorpe / Goff on watch.

0721:23 S.O.L. 99 $41^{\circ} 06.527' N$
 $124^{\circ} 31.348' W$

1002:24 E.O.L. 99 $41^{\circ} 00.414' N$
 $124^{\circ} 16.518' W$

Ended line early to comply with
 Captain's night instructions.

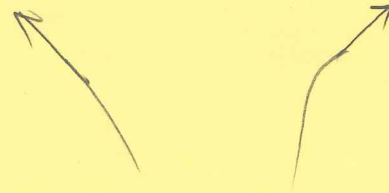
1017:33 S.O.L. 97 $41^{\circ} 00.346' N$
 $124^{\circ} 17.667' W$

1100 Requested that bridge extend line
 97 seaward of ending W.P. to point
 of intersection with line 113 extended.
 Then turn right onto 113.

1144 Guard buoys 0.26 miles to S.
 (Y450 Mooring).

1150 End of streamer (tail float) passing
 mooring guard buoys.

1155 Bearing to tail float 174° relative to COG
 (300°). ∴ Streamer angled 6° to right
 of track.



ECDIS (TRANSAS)
Problem

53

JD 209 / JULY 27 W9605

1157 Bird depths: 8, 7, 8, 8, 7, 7 ft.

1200 - 1245 TRANSAS (Bridge's computer navigation) had a problem. It stopped plotting planned seismic lines. Finally fixed at 1245. May have wandered from line in meantime, but probably not far. During the course of this episode, locations of crab pots were lost from TRANSAS.

1309:28 E.O.L. 97 $41^{\circ} 07.057' N$
 $24^{\circ} 33.859' W$

1340:42 S.O.L. 113 $41^{\circ} 06.930' N$
 $124^{\circ} 33.353' W$

1454 Swell low - 2-4 ft. Seas minimal.

1803 Small offset on TRANSAS screen, just before reaching SE waypoint of line 113, in ship's track. (offset ~ 15 m.). Haven't seen such a thing before.

1807 E.O.L. 113 $40^{\circ} 49.853' N$
 $124^{\circ} 15.574' W$

1827 S.O.L. 51 $40^{\circ} 48.979' N$
 $124^{\circ} 16.791' W$

1850 Captain reported that positions of crab pots can be recovered.

2102 Tail buoy 175° rel to hdg of 284; COG = 283
 hence buoy is 4° starboard of COG
 birds 15 9 7 8 9 9 9
 seas flat, no swell; fog; streamer V quiet

2104 passing 10m WP

JD209/July 27

W9605

21:06:32

EOL 51

 $40^{\circ} 52.073$
 $124^{\circ} 33.208$

2111

beginning turn to stbd.

021:32:40

SOL 55

 $40^{\circ} 52.835$
 $124^{\circ} 32.493$

00:12:

EOL 55

 $40^{\circ} 49$
 124°

- ended @ crab pot line

00:44:46

SOL 47

 $40^{\circ} 48.285$
 $124^{\circ} 17.828$

03:17

passing WP; tail buoy @ 168 relative

03:29:51

EOL 47

 $40^{\circ} 51.479$
 $124^{\circ} 34.740$

04:24:35

SOL 39

 $40^{\circ} 49.982$
 $124^{\circ} 34.306$

04:27

passing WP used to define this "extension" of line 39

05:40

 tail buoy 168° rel / hdg = 111, 106:105 // buoy = 6° stbd of 106
 birds 12 9 9 7 7 8 8 ft

06:57:02

EOL 39

 $40^{\circ} 46.640$
 $124^{\circ} 18.600$

a little short of our intended end pt.

- Can't see b/c of crab pots + large tree stump seen floating in vicinity on previous pass

JD 210 / July 28

W9605

0700 Fulthorpe / Goff on watch.
 0732:55 S.O.L. 31 $40^{\circ} 45.390' N$
 $124^{\circ} 20.648' W$

Streamer not aligned at S.O.L.

0930 Bearing to tail float 177° relative
 to COG (292°) \therefore streamer 3° to starboard.
 Bird depths: 8, 7, 6, 7, 7, 9, 8 ft.

0959 E.O.L. 31 $40^{\circ} 49.732' N$
 $124^{\circ} 35.045' W$

1021 S.O.L. 35 $40^{\circ} 49.648' N$
 $124^{\circ} 33.921' W$

Some maneuvering to avoid a fishing
 boat:

Crossed from right of line ($\sim 25m$)
 to left of line.

1030 ~~n90~~ $\sim 90m$ left of line. (Position of ship,
 not streamer.)

1040 $\sim 110 m$ " " "

1048 $\sim 150 m$ " " "

1053 $\sim 200 m$ " " "

1100 $\sim 270 m$ " " "

1106 Turning back toward line. Still
 $240m$ to left at 1107.

1108 Turning back to line more sharply
 than we left it. $140 m$ to left of line.

1110 $70 m$ left of line (ship, not streamer.)

1113 Ship back on line - streamer not yet
 aligned.

OYO Clock

54

JD 210 / July 28

W9605

1245:49

E.O.L. 35

40° 45.939' N

124° 19.526' W

Getting light.

1311

Ship on line 27, streamer not yet on line.

1313:17

S.O.L. ~~27~~ 27

40° 44.785' N

124° 21.503' W

1418

Bridge communicating on Side Band (though "radio noise" problem was in fact due to lack of grounding in OYO and such communication should not affect data).

1419

DISREGARD THE ABOVE! ↑
They're not talking after all.

1537:35

E.O.L. 27

40° 49.588' N

124° 35.510' W

1702:50

S.O.L. 48

40° 47.153' N

124° 30.516' W

Streamer may not be properly aligned at S.O.L.

21:1239

EOL 48

41° 06.144

124° 21.462

tail buoy 178°
birds 10 10 9 8 7 9 9

2116

beginning turn

2118

OYO clock 5 sec shown than MX200 GPS; re-set

21:43:23

SOL 40

41° 05.172

124° 19.436

2145

passing thru WP

JD 210/July 28 W 9605

2218-2220 ~ 12 shots /oot between tape Δ

2350

Carl QT John note, coolant in compressor radiator is
 running suggesting air leak in 1st stage
 heat exchanger - if it gets no worse, OK
 - otherwise c/o big prob.

JD 211/July 29

0150

Xing WP: tail buoy 171° relative
 hence buoy 1° port of COG
 buds 9 88 7 8 8 8

hdy 192
 COG 200

$\left[90^\circ \text{ star. ?} \right]$
 (CSF JD 212)

0153:47

EOL 40

$40^\circ 46.190$
 $124^\circ 28.595$

02:14:18

SOL 44

$40^\circ 46.474$
 $124^\circ 29.672$

02:18

passing WP

02:22

tail buoy 178° re: COG

0620

passing WP

06:23:43

EOL 44

$41^\circ 05.746$
 $124^\circ 20.386$

0700

Fielthorpe / Gaff / Diebold on watch.

0800:07

S.O.L. 107

$41^\circ 06.391'N$
 $124^\circ 26.147'W$

Streamer aligned with ship at S.O.L.,
 but ship not ^{yet} on proper course.

JD 211/JULY 29

W9605

0952:08

E.O.L. 107

41° 02.072' N

124° 15.735' W

(No nose plot available at E.O.L.)

1001:38

S.O.L. 105

41° 01.828' N

124° 16.236' W

Not quite on line at S.O.L.
Closing with line at a shallow angle. Streamer not aligned properly either.

1006

Probably settled down on line.

1024

Noted a problem on OYO - display showing only nose - position was 41° 02.718' N
124 18.422' W

J. Diebold ~~found~~ discovered the problem. He thinks it's electrical. Has spoken P. Buhl.

1033

Bird depths OK: 8, 8, 7, 8, 8, 7, 9 ft.

1036

Requested that bridge begin to turn back to S.O.L. to overshoot this line.

1209

Still circling west of S.O.L. 105. Buhl and Diebold working on acquisition problem. We were not ready to restart line when we got into position and are in the middle of another circuit.

1255

Gutierrez replacing Diebold. Buhl continuing to ~~also~~ work on problem. Getting light outside

1737

Gutierrez + Buhl continuing to work on problem.

JD 21/July 29

W9605

2155

have divided data collected (+ hoped for data to be collected)
btw LDEO + UTIG

- gen. ly. alt. lines go to ea. inst.
- both have ~ 720 AM
- all field tapes will eventually be archived @ LDEO
- when processed thru migration, ea. will send mig. stack tape and paper display to other inst.
- Goff + Saustump are re-boxing tapes for air freight

ship still running race track around break-off pt
@ 4.5 km and stbd turns

weather foggy, wind 15 km from NW, Seas 2-4 ft,
swells bil

- Cap'n says OK to crane / ITI winch w/out port

Buhl + Gutierrez continue w/power supply

- have replaced 1 capacitor but prob is more complex
- some channels have come back clean, but both g
continues on next

called Rawson

- he will have truck @ dock when we arrive Thurs.
- he will use our old heavy winch, 1st + keep shore crane as long as poss - faster than ship

called Westfall

- ETA 10 AM Thurs. clock A
- pls call crane for 10:30
- pls call Bigfoot for 1 PM

plan:

- get Diebold up by 3:30 (local) + inform
- if no solution to power supply ~~and~~ + none in sight, prepare for ITI

JD 21/July 29

W9605

2255

gave up on Geco repair

Dredged up / bridge OK w/ following:

pull gun
 pull Geco streamer + tail buoy
 move ITI
 maneuver to break-off pt
 redeploy ITI, gun
 hope

2350

tail buoy aboard

JD 212/July 30

0005

8 nm to SOL 105; 10-12 Kn, then come around to $\sim 330^\circ$

0100

2-3 Kn; moving ITI heading into swell $\sim 330^\circ$

0140

3 Kn, streamer going out on $\sim 150^\circ$ hdy back to SOL 105

0235

streamer in 2.4 nm from SOL 105
 most noisey channels like before

0255

compression up to pressure; gun going in

0305?

0805

gun firing OK, but apparently w/ leak - 1500 psi max

0310?

0810

B pulse gone / must pull gun
 - will circle in stbd turns
 - will swap gun

0335?

0835

new gun in; 2000 psi

JD 212/July 30 W9605

04:28:42 SOL 105R 41° 01.849
124° 16.337

coming up to 4.86 kn / 12.5 m spacing @ 5 sec

- compressor @ 1625 rpm, trying to
keep psi close to 20000635 Fullthorpe / Scheerer on watch.
Sawtrup, ~~with~~ with help from Giff, has divided tapes &
0714:16 E.O.L. 105R 41° 08.301' N (for UTIG)
124° 31.890' W (+ LDRs)0740:55 S.O.L. 111 41° 09.223' N
124° 30.714' W0745 Deviating to left of line to avoid a
fishing boat (gentle deviation).
Maximum deviation is 80 m.

20800 Back on line.

1017 speed only 4.5 kt. Haven't checked
it for some time.
It's due to currents bridge said1019 E.O.L. 111 41° 03.127' N
124° 15.906' W1055:54 S.O.L. 101 41° 01.091' N
124° 16.858' W
Streamer may not be aligned at S.O.L.1247:34 E.O.L. 101 41° 05.404' N
124° 27.353' W1255 Considerable rolling at E.O.L.
Getting light. Swell 4-6 ft

GPS jump

62

JD 212 / JULY 30

W9605

1300:50 S.O.L. 103

41° 05.662' N

124° 26.766' W

Streamer not aligned at S.O.L.

1330 C. Gutierrez has started moving
Geco equipment back to van.1350 Swell 6-8 ft., following ship on
this course.

1500:33 E.O.L. 103

41° 00.972' N

124° 15.408' W

Turning to start Line 12 - well S. of
its original N. end. (because of crab
pots.)1534 Turning to right to avoid a pot.
Not yet on Line 12.

1556 S.O.L. 12

40° 56.776' N

124° 14.741' W

Streamer not fully aligned at S.O.L.

1808 GPS jumped (ship symbol on
~~ECDIS~~ ECDIS jumped off track ~~by~~ by
~ 100 m.) Not steering back to
track as shown on ECDIS. Bridge
steering a course based on its own
GPS.1830 Buhl powered down MX200 (Lab GPS)
and powered it back up again.
Ship image returned to pre-plotted
track on ECDIS.

212 / July 30

W9605

1900 ship off line by 40m @ Δ watch, back on by 19101940 crab pot 100 yds to port
WD 30m on 3.5 kts

19:55:10

EOL 12

40° 38.475

124° 23.566

weather clear, wind 10 kn from NW, seas 3-5 ft
swells 6-10

1957

beginning turn

20:32:07

SOL 22

40° 39.480

124° 26.089

2035

passing WP

JD 213 / July 31

0128

AK to due N to stay 0.2 nmi W of lined pots

- keep recording Line 22

01:47:18

EOL 22

41° 03.45

124° 15.285

- swinging left to get enough room to turn
270° to starboard + clear long line of pots N-S

0151

- bridge called to say they will continue
going slowly W (port) and then
make 1: ~~180~~ 180° to starboard.

02:13:38

SOL 26

41° 03.824

124° 15.670

02:17:45

Passing waypoint.

213 / JULY 31

W9605

0700

Fulthorpe / Goff on watch.
Significant rolling.

0730

Have to extend line 26 ~ 1 mile
because of a crab pot where we
would have turned. However, ship
went from side to side of line
during this mile - as much as
50 m off line.

E.O.L. 26

40° 39.080' N

124° 27.555' W

0752

Swell ~ 6-8 ft.

Full moon.

(rare clear skies)

0800:32

S.O.L. 28A

40° 40.337' N

124° 27.514' W

Streamer not aligned at S.O.L.

0903:56

E.O.L. 28A

40° 45.091' N

124° 25.246' W

(Ran 1 mile past W.P. to ensure overlap
and to make sharp turn to 68).

0918:55

S.O.L. 68

40° 44.382' N

124° 25.301' W

Streamer might not be aligned
at S.O.L., but should be by
~ 0920.

(This line goes into Eel canyon for possible
Occasional heavy rolls. correlation to outcrops)

1000

1104

E.O.L. 68

40° 38.057' N

124° 32.985' W

JD 203 / 31 July

W 9605

1128:16 SOL 70 $40^{\circ} 38.934' N$
 $124^{\circ} 33.187' W$
 Streamer might not be straight
 at S.O.L.

1130 Probably straight by now

1254 Getting light.
 Swell must be up to ~ 10 ft.
 A lot of rolling.

1308:28 E.O.L. 70 $40^{\circ} 44.344' N$
 $124^{\circ} 25.234' W$

1343:06 S.O.L. 28B $40^{\circ} 43.826' N$
 $124^{\circ} 25.846' W$

Streamer may not be properly
 aligned at S.O.L.

1455 First mate reported that GPS seemed
 to be jumping again. He wasn't
 sure. It wasn't a steady shift
 like yesterday.

Mate said it could have been
 currents in Eel Canyon, however

1627 Asked bridge to reduce speed. Had
 crept up to 5.2 kts.

1701 Tapes are coming out 3 minutes
 late. Delay may have occurred in
 one tape. (Missed shots?). Not sure when.
 There's a 3 minute gap in log (just
 an apparent gap).

1809:02 E.O.L. 28B $41^{\circ} 04.227' N$
 $124^{\circ} 16.042' W$

Many skipped shots on E.O.L. printout.

JD 213 / 31 July

W 9605

1830 Had to deviate sharply during turn to avoid a crab pot. (In unrescued deep water - ~90 m).

18:58:14 SOL 36 $41^{\circ} 04.354$
 \swarrow 34 $124^{\circ} 17.780$

2140 1 dem-out to CoChief -
 we've been running line 34, which is OK, needs to be done, but 2 probs:
 1) we've logged all this as line "36"
 2) 34 is 5 nmi longer than 36
 So - will change tapes already collected to now read line 34
 - will end line 5 nmi b4 waypt.

2303 passing thru Waypt

23:05:06 EOL 34 $40^{\circ} 45.450$
 $124^{\circ} 26.873$

23:08 Beginning of turn.

JD 214

00:01:40 SOL 46R $40^{\circ} 46.762$

$124^{\circ} 30.133$

This segment of 46 is re-shoot of 46 missed during setup on JD 206

00:04:45 Passed waypoint @ start

0158 past WP @ end

JD 214 / Aug 1

W9605

02:02:03

EOL 46R

 $40^{\circ} 55.942$
 $124^{\circ} 25.714$

03:10:41

SOL 63E

 $40^{\circ} 54.756$
 $124^{\circ} 30.876$

0318

passing waypt @ start

0407

passing waypt @ end

04:10:26

EOL 63E

 $40^{\circ} 56.094$
 $124^{\circ} 36.173$

04:57:31

SOL 69E

 $40^{\circ} 58.950$
 $124^{\circ} 35.603$

0500

passing thru waypt (@ start)

0550

passing thru waypt (@ end)

05:54:02

EOL 69E

 $40^{\circ} 57.263$
 $124^{\circ} 29.991$

0556

beginning 2x 270° turns

0700

Fullthorpe / Griff on watch.

0710:21

S.O.L. 75E

 $40^{\circ} 59.403' N$
 $124^{\circ} 29.141' W$

Streamer might not be aligned
at S.O.L.

0809:16

E.O.L. 75E

 $41^{\circ} 01.475' N$
 $124^{\circ} 34.623' W$

Last line.

JD 214 / 1 August

W 9605

- 0815 3.5 kHz off.
Compressor off
Slowing to 3 kt to recover gear.
- 0907 Gun and streamer on board.
- 0945 Ship to 12 kt to clean out engines.
- 1500 Man overboard drill.
- 1535 Entering Humboldt Bay.
- 1602 tied up @ dock A

