Centre for Environment Fisheries & Aquaculture Science

Cefas

RESEARCH VESSEL PROGRAMME

RV CEFAS ENDEAVOUR
Survey: C END 08 - 2021

STAFF:

Part 1: 15th – 21st May – Scallop (changes from v1 highlighted)

Name	Role	Cabin	Shift
Karen Vanstaen	SIC, H&S and counter	B1	08:00 – 20:00
Chris Firmin	Watch & counter	SIC cabin	08:00-12:00/20:00-24:00
Christopher Popham	Watch & counter	C3	00:00-04:00/12:00-16:00
Charlotte Reeve	2IC, Watch lead & counter	C5	04:00-08:00/16:00-20:00
Ros McIntyre	Watch lead & counter	C6	08:00-12:00/20:00-24:00
Joanna Uzyczak	Watch lead & counter	C7	00:00-04:00/12:00-16:00
James Scott	Plankton imager, water sampling & watch	D3	04:00-08:00/16:00-20:00
Rodney Brash	Lifting ops, technician & data responsible	C4	On call

Part 2: 22nd – 28th May – Nephrops (note: only role / watch changes for SICs; no cabin changes; changes from 1st half in bold)

Name	Role	Cabin	Shift
Karen Vanstaen	H&S, Watch lead & counter	B1	08:00-12:00/20:00-24:00
Chris Firmin	SIC and counter	SIC cabin	08:00-20:00
Christopher Popham	Watch and counter	C3	00:00-04:00/12:00-16:00
Charlotte Reeve	2SIC, watch lead & counter	C5	04:00-08:00/16:00-20:00
Ros McIntyre	Watch lead & counter	C6	08:00-12:00/20:00-24:00
Joanna Uzyczak	Watch lead & counter	C7	00:00-04:00/12:00-16:00
James Scott	Plankton imager, water sampling & watch	D3	04:00-08:00/16:00-20:00
Rodney Brash	Lifting ops, technician & data responsible	C4	On call

DURATION: **15th-28th May**

LOCATION: **Part 1 Scallop** North Sea 27.4.b (Figures 1 & 2, Table 1)

Part 2 Nephrops Farn Deeps grounds (Figure 3, Table 2)
West Gabbard (Table 3)

AIMS:

Part 1 Scallop (C8011B – 7 days)

1. **To optimise STR camera configuration and deployment for scallop UWTV survey**
2. **To trial a Rayfin camera system in selected areas testing video quality and frequency and quality of captured stills images as a candidate replacement for the main STR survey camera.**
3. **Estimate scallop abundance using UWTV in selected un-dredged areas to compliment data collected as part of the wider scallop stock assessment in the region (57 stations)**
4. **As time permits additional survey areas described by existing dredge survey beds (commercial survey due September) are located both inshore and offshore from the priority 1 sites (Figure 1). Prioritization TBC.**

Part 2 Nephrops (MB002C – 7 days)

5. **To conduct a standard underwater TV survey of *Nephrops* burrow densities using UWTV sledge on the Farn Deeps grounds, 55º 35' - 54º 45' N and 1º 30' - 0º 40' W, and to evaluate *Nephrops* abundance (110 stations)**

Other

6. **Collection of Zooplankton sample at West Gabbard if time permits**
7. **To carry out trials of continuous flow plankton imager device**
8. **Take daily water samples from the underway supply for filtering and freezing, used for chlorophyll sampling as part of SLA25**

PLAN:

Part 1 Scallop - Staff will board CEFAS ENDEAVOUR from 08:30 on 12th May 2021 to carry out pre-survey Covid testing.

Subject to negative Covid tests for all crew and scientists, CEFAS ENDEAVOUR will sail at 00:19 on 15th May (tbc) from Lowestoft to the scallop UWTV survey areas off Yorkshire coast. This survey involves 24-hour procedures, and the scientific staff will be working 4/8 hours shifts (3 people per shift) with one MIST engineer on call.

On arrival at the survey area the drop-frame camera system will be deployed at first site (to be determined). Repeat tows using alternative gear configurations and deployment parameters to optimise ground coverage without compromising image quality (objective 1). Trial Rayfin camera system (objective 2). Start grid of deployment positions (objective 3). If priority tow positions completed proceed to dredge survey tow sites (objective 4) (priority tbc).

Part 2 Nephrops - On 22nd May (tbc), Cefas Endeavour we will head to the north of the Farn Deeps *Nephrops* grounds survey area. Once at the north of the Farn Deeps *Nephrops* grounds, Endeavour will carry out the following activities (objective 5):

FU6 110 TV camera sledge transects as shown in Figure 3 and detailed in table 2 (between 55º 35' - 54º 45' N and 1º 30' - 0 º 40' W)

Following completion of UWTV operations and if time permits, RV Cefas Endeavour will steam south to the West Gabbard 1 site and carry out the following activity (objective: 6):

WGab1 Zooplankton net haul sample (in area of 51° 57'.2N, 002° 07'.2E)

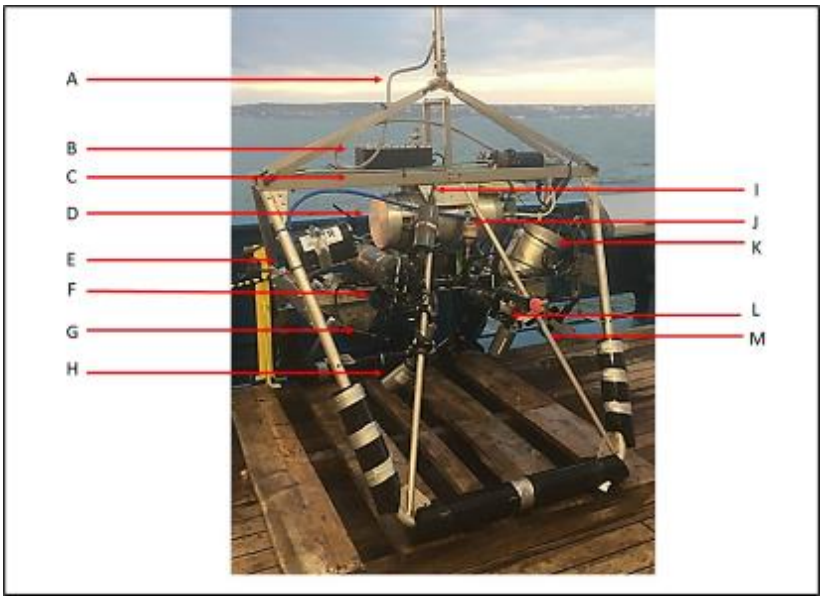
Throughout the survey we will be carrying out continuous underway plankton sampling using the plankton imager (objective 7).

Throughout the survey we will be collecting underway water samples from the Ferrybox (objective 8). Water samples will be at 04:00 daily and at 22:00 daily, if time permits.

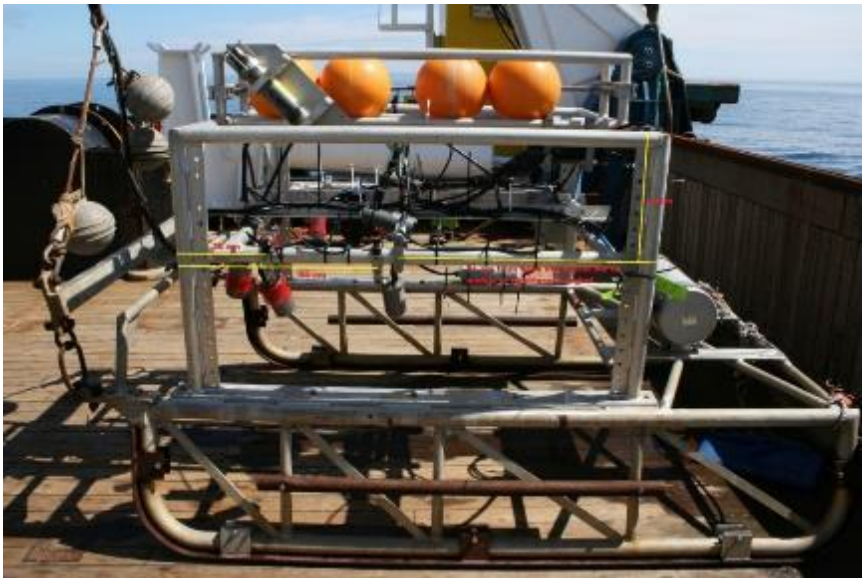
Endeavour will return to Lowestoft at 23:00 on 28th May (tbc)

GEAR:

Part 1 Scallop - STR SeaSpyder drop frame camera system with HD video and stills. The drop frame will be towed with the tide at 0.4 knots approximately 0.5m off the seabed for 20 minutes at each site. Rayfin camera system will be fitted to available frame and trialled at selected sites.



Part 2 Nephrops - STR TV sledge: Setup with 2 fan lasers, 6 LED lights, HD camera and fibre optic umbilical. The sledge will be towed (0.7 Knot) against the tide and 10 minutes of good footage will be recorded, this corresponds to ~ 200m of track.



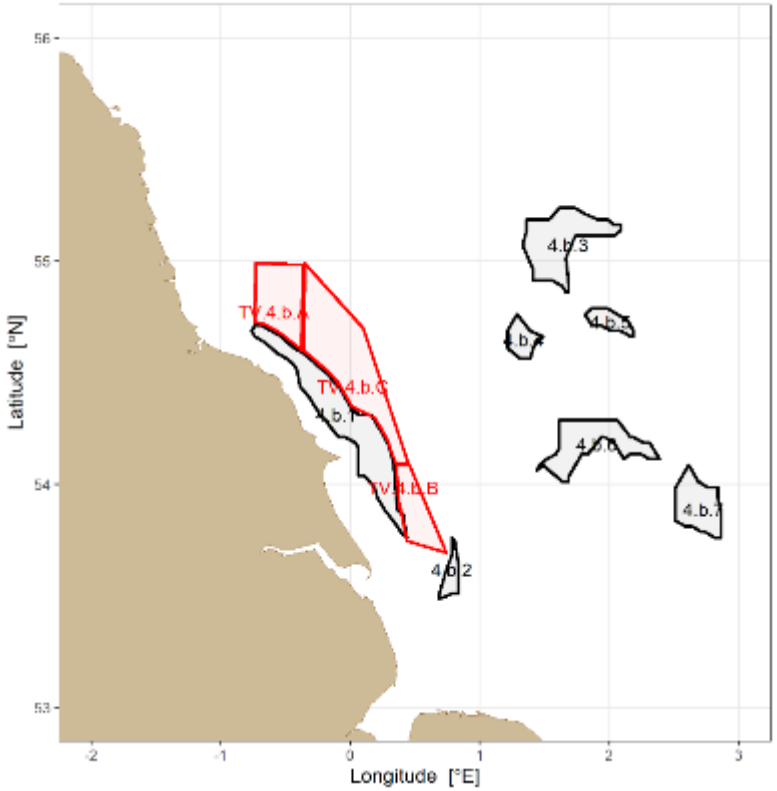


Figure 1. Overview of work area in North Sea – Areas in red are priority 1 survey areas.

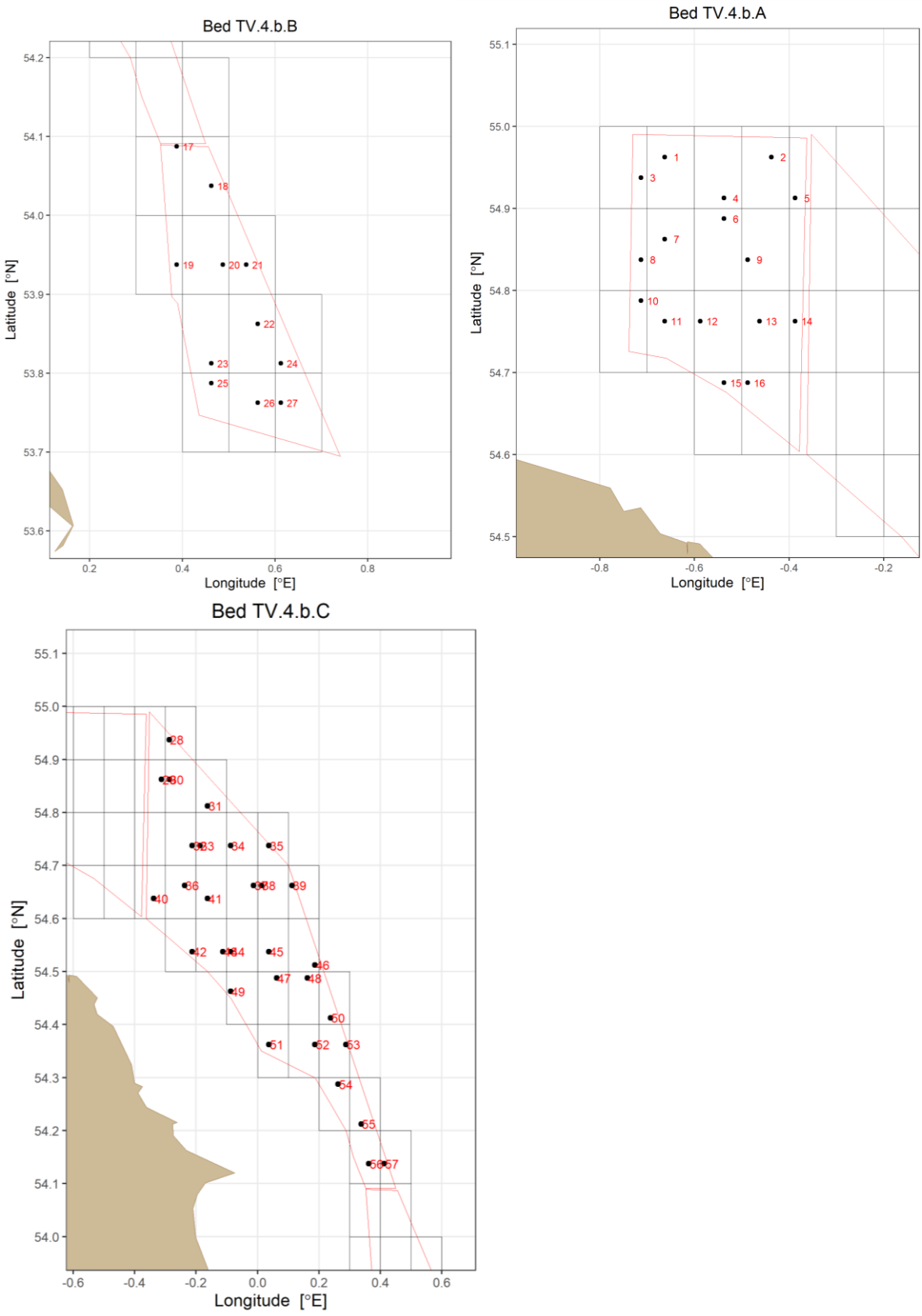


Figure 2. Tow positions in TV beds A, B and C.

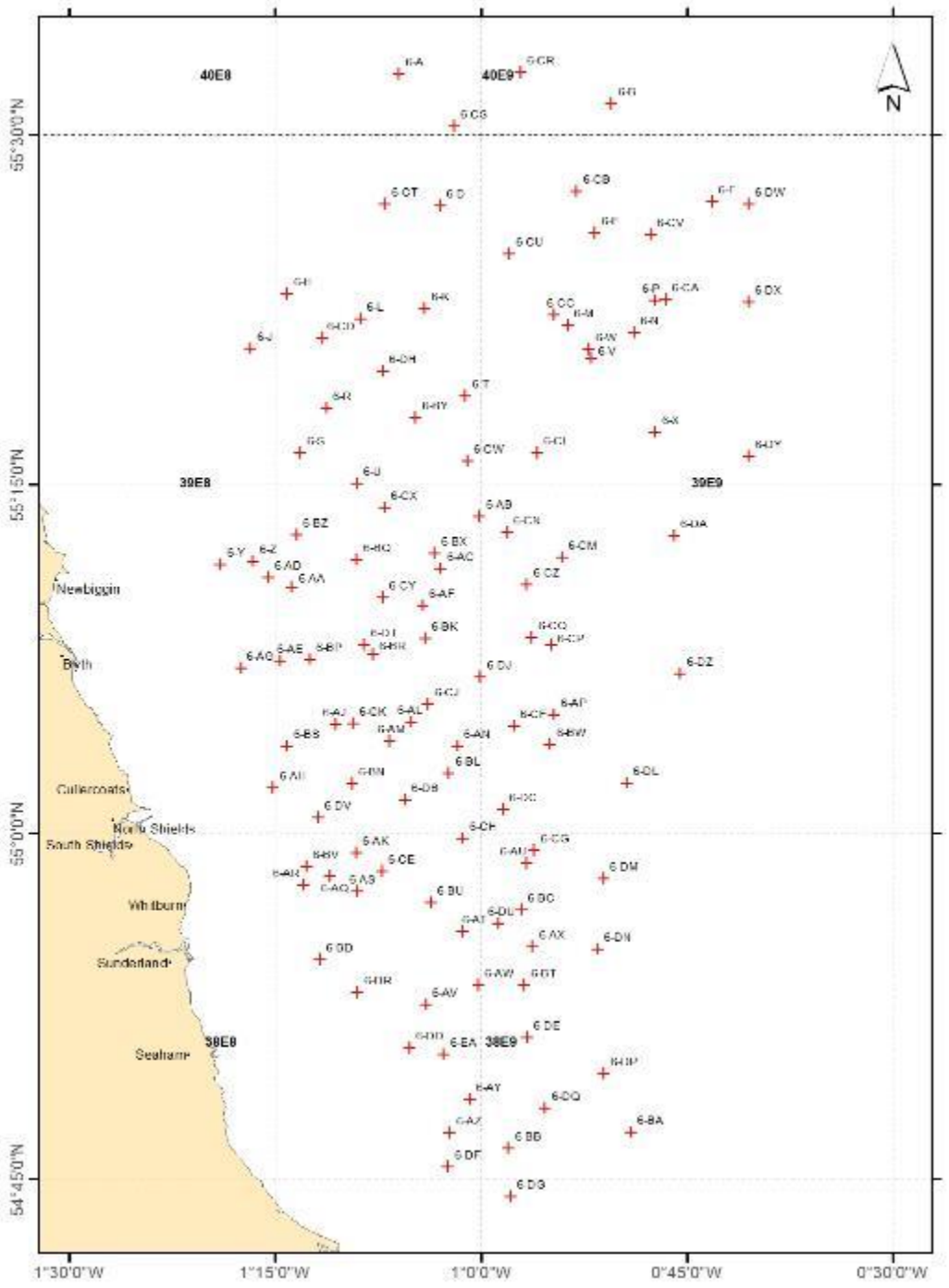


Figure 3. C END 08/21 Nephrops TV station positions.

Table 1. C END 08/21 Scallop station priority positions (objective 3).

Bed	ID	*LatD*	LatM	LongD	LongM	E/W	DecLat	DecLong
TV.4.b.A	1	*54*	57.75	0	39.75	W	54.9625	-0.6625
TV.4.b.A	2	*54*	57.75	0	26.25	W	54.9625	-0.4375
TV.4.b.A	3	*54*	56.25	0	42.75	W	54.9375	-0.7125
TV.4.b.A	4	*54*	54.75	0	32.25	W	54.9125	-0.5375
TV.4.b.A	5	*54*	54.75	0	23.25	W	54.9125	-0.3875
TV.4.b.A	6	*54*	53.25	0	32.25	W	54.8875	-0.5375
TV.4.b.A	7	*54*	51.75	0	39.75	W	54.8625	-0.6625
TV.4.b.A	8	*54*	50.25	0	42.75	W	54.8375	-0.7125
TV.4.b.A	9	*54*	50.25	0	29.25	W	54.8375	-0.4875
TV.4.b.A	10	*54*	47.25	0	42.75	W	54.7875	-0.7125
TV.4.b.A	11	*54*	45.75	0	39.75	W	54.7625	-0.6625
TV.4.b.A	12	*54*	45.75	0	35.25	W	54.7625	-0.5875
TV.4.b.A	13	*54*	45.75	0	27.75	W	54.7625	-0.4625
TV.4.b.A	14	*54*	45.75	0	23.25	W	54.7625	-0.3875
TV.4.b.A	15	*54*	41.25	0	32.25	W	54.6875	-0.5375
TV.4.b.A	16	*54*	41.25	0	29.25	W	54.6875	-0.4875
TV.4.b.B	17	*54*	5.25	0	23.25	E	54.0875	0.3875
TV.4.b.B	18	*54*	2.25	0	27.75	E	54.0375	0.4625
TV.4.b.B	19	*53*	56.25	0	23.25	E	53.9375	0.3875
TV.4.b.B	20	*53*	56.25	0	29.25	E	53.9375	0.4875
TV.4.b.B	21	*53*	56.25	0	32.25	E	53.9375	0.5375
TV.4.b.B	22	*53*	51.75	0	33.75	E	53.8625	0.5625
TV.4.b.B	23	*53*	48.75	0	27.75	E	53.8125	0.4625
TV.4.b.B	24	*53*	48.75	0	36.75	E	53.8125	0.6125
TV.4.b.B	25	*53*	47.25	0	27.75	E	53.7875	0.4625
TV.4.b.B	26	*53*	45.75	0	33.75	E	53.7625	0.5625
TV.4.b.B	27	*53*	45.75	0	36.75	E	53.7625	0.6125
TV.4.b.C	28	*54*	56.25	0	17.25	W	54.9375	-0.2875
TV.4.b.C	29	*54*	51.75	0	18.75	W	54.8625	-0.3125
TV.4.b.C	30	*54*	51.75	0	17.25	W	54.8625	-0.2875
TV.4.b.C	31	*54*	48.75	0	9.75	W	54.8125	-0.1625
TV.4.b.C	32	*54*	44.25	0	12.75	W	54.7375	-0.2125
TV.4.b.C	33	*54*	44.25	0	11.25	W	54.7375	-0.1875
TV.4.b.C	34	*54*	44.25	0	5.25	W	54.7375	-0.0875
TV.4.b.C	35	*54*	44.25	0	2.25	E	54.7375	0.0375
TV.4.b.C	36	*54*	39.75	0	14.25	W	54.6625	-0.2375
TV.4.b.C	37	*54*	39.75	0	0.75	W	54.6625	-0.0125
TV.4.b.C	38	*54*	39.75	0	0.75	E	54.6625	0.0125
TV.4.b.C	39	*54*	39.75	0	6.75	E	54.6625	0.1125
TV.4.b.C	40	*54*	38.25	0	20.25	W	54.6375	-0.3375
TV.4.b.C	41	*54*	38.25	0	9.75	W	54.6375	-0.1625

TV.4.b.C	42	*54*	32.25	0	12.75	W	54.5375	-0.2125
TV.4.b.C	43	*54*	32.25	0	6.75	W	54.5375	-0.1125
TV.4.b.C	44	*54*	32.25	0	5.25	W	54.5375	-0.0875
TV.4.b.C	45	*54*	32.25	0	2.25	E	54.5375	0.0375
TV.4.b.C	46	*54*	30.75	0	11.25	E	54.5125	0.1875
TV.4.b.C	47	*54*	29.25	0	3.75	E	54.4875	0.0625
TV.4.b.C	48	*54*	29.25	0	9.75	E	54.4875	0.1625
TV.4.b.C	49	*54*	27.75	0	5.25	W	54.4625	-0.0875
TV.4.b.C	50	*54*	24.75	0	14.25	E	54.4125	0.2375
TV.4.b.C	51	*54*	21.75	0	2.25	E	54.3625	0.0375
TV.4.b.C	52	*54*	21.75	0	11.25	E	54.3625	0.1875
TV.4.b.C	53	*54*	21.75	0	17.25	E	54.3625	0.2875
TV.4.b.C	54	*54*	17.25	0	15.75	E	54.2875	0.2625
TV.4.b.C	55	*54*	12.75	0	20.25	E	54.2125	0.3375
TV.4.b.C	56	*54*	8.25	0	21.75	E	54.1375	0.3625
TV.4.b.C	57	*54*	8.25	0	24.75	E	54.1375	0.4125

Table 2. C END 08/21 Nephrops station positions for the Farn Deeps (FU6) area (objective 5).

Area	TVID	LatD	LatM	LongD	LongM	DecLat	DecLong
FU6	**6-A**	55	32.5405	-1	5.9825	55.5423	-1.0997
FU6	**6-B**	55	31.2705	0	50.536	55.5212	-0.8423
FU6	**6-D**	55	26.9245	-1	2.9665	55.4487	-1.0494
FU6	**6-E**	55	25.766	0	51.727	55.4294	-0.8621
FU6	**6-F**	55	27.115	0	43.166	55.4519	-0.7194
FU6	**6-H**	55	23.1485	-1	14.108	55.3858	-1.2351
FU6	**6-J**	55	20.8195	-1	16.773	55.347	-1.2795
FU6	**6-K**	55	22.5425	-1	4.1145	55.3757	-1.0686
FU6	**6-L**	55	22.075	-1	8.77	55.3679	-1.1462
FU6	**6-M**	55	21.8065	0	53.66	55.3634	-0.8943
FU6	**6-N**	55	21.5175	0	48.839	55.3586	-0.814
FU6	**6-P**	55	22.8875	0	47.3105	55.3815	-0.7885
FU6	**6-R**	55	18.277	-1	11.2245	55.3046	-1.1871
FU6	**6-S**	55	16.3355	-1	13.155	55.2723	-1.2193
FU6	**6-T**	55	18.7905	-1	1.1415	55.3132	-1.019
FU6	**6-U**	55	15.027	-1	9	55.2504	-1.15
FU6	**6-V**	55	20.3955	0	51.96	55.3399	-0.866
FU6	**6-W**	55	20.764	0	52.156	55.3461	-0.8693
FU6	**6-X**	55	17.2445	0	47.312	55.2874	-0.7885
FU6	**6-Y**	55	11.552	-1	18.957	55.1925	-1.316
FU6	**6-Z**	55	11.6655	-1	16.593	55.1944	-1.2766
FU6	**6-AA**	55	10.5855	-1	13.7555	55.1764	-1.2293
FU6	**6-AB**	55	13.6265	-1	0.093	55.2271	-1.0016
FU6	**6-AC**	55	11.3755	-1	2.935	55.1896	-1.0489
FU6	**6-AD**	55	10.9925	-1	15.4685	55.1832	-1.2578

FU6	**6-AE**	55	7.393	-1	14.626	55.1232	-1.2438
FU6	**6-AF**	55	9.7795	-1	4.247	55.163	-1.0708
FU6	**6-AG**	55	7.076	-1	17.4725	55.1179	-1.2912
FU6	**6-AH**	55	1.9165	-1	15.132	55.0319	-1.2522
FU6	**6-AJ**	55	4.65	-1	10.57	55.0775	-1.1762
FU6	**6-AK**	54	59.104	-1	9.079	54.9851	-1.1513
FU6	**6-AL**	55	4.758	-1	5.048	55.0793	-1.0841
FU6	**6-AM**	55	3.919	-1	6.626	55.0653	-1.1104
FU6	**6-AN**	55	3.7155	-1	1.6815	55.0619	-1.028
FU6	**6-AP**	55	5.064	0	54.6885	55.0844	-0.9115
FU6	**6-AQ**	54	58.1145	-1	11.0145	54.9686	-1.1836
FU6	**6-AR**	54	57.71	-1	12.9065	54.9618	-1.2151
FU6	**6-AS**	54	57.4505	-1	9.0015	54.9575	-1.15
FU6	**6-AT**	54	55.703	-1	1.3515	54.9284	-1.0225
FU6	**6-AU**	54	58.6765	0	56.68	54.9779	-0.9447
FU6	**6-AV**	54	52.5465	-1	3.971	54.8758	-1.0662
FU6	**6-AW**	54	53.369	-1	0.185	54.8895	-1.0031
FU6	**6-AX**	54	55.0255	0	56.2345	54.9171	-0.9372
FU6	**6-AY**	54	48.4275	-1	0.8005	54.8071	-1.0133
FU6	**6-AZ**	54	46.949	-1	2.28	54.7825	-1.038
FU6	**6-BA**	54	46.9985	0	49.096	54.7833	-0.8183
FU6	**6-BB**	54	46.294	0	57.99	54.7716	-0.9665
FU6	**6-BC**	54	56.656	0	57.066	54.9443	-0.9511
FU6	**6-BD**	54	54.48	-1	11.704	54.908	-1.1951
FU6	**6-BK**	55	8.3505	-1	4.068	55.1392	-1.0678
FU6	**6-BL**	55	2.5395	-1	2.3485	55.0423	-1.0391
FU6	**6-BN**	55	2.102	-1	9.3845	55.035	-1.1564
FU6	**6-BP**	55	7.4605	-1	12.468	55.1243	-1.2078
FU6	**6-BQ**	55	11.7365	-1	9.0545	55.1956	-1.1509
FU6	**6-BR**	55	7.6645	-1	7.8575	55.1277	-1.131
FU6	**6-BS**	55	3.713	-1	14.1035	55.0619	-1.2351
FU6	**6-BT**	54	53.3655	0	56.8425	54.8894	-0.9474
FU6	**6-BU**	54	56.9725	-1	3.654	54.9495	-1.0609
FU6	**6-BV**	54	58.537	-1	12.695	54.9756	-1.2116
FU6	**6-BW**	55	3.7895	0	54.9875	55.0632	-0.9165
FU6	**6-BX**	55	12.0335	-1	3.393	55.2006	-1.0565
FU6	**6-BY**	55	17.8435	-1	4.767	55.2974	-1.0794
FU6	**6-BZ**	55	12.803	-1	13.43	55.2134	-1.2238
FU6	**6-CA**	55	22.928	0	46.5375	55.3821	-0.7756
FU6	**6-CB**	55	27.5395	0	53.034	55.459	-0.8839
FU6	**6-CC**	55	22.2735	0	54.6865	55.3712	-0.9114
FU6	**6-CD**	55	21.2535	-1	11.555	55.3542	-1.1926
FU6	**6-CE**	54	58.309	-1	7.208	54.9718	-1.1201
FU6	**6-CF**	55	4.576	0	57.598	55.0763	-0.96
FU6	**6-CG**	54	59.227	0	56.138	54.9871	-0.9356

FU6	**6-CH**	54	59.7265	-1	1.317	54.9954	-1.022
FU6	**6-CJ**	55	5.5165	-1	3.8465	55.0919	-1.0641
FU6	**6-CK**	55	4.7055	-1	9.294	55.0784	-1.1549
FU6	**6-CL**	55	16.335	0	55.915	55.2722	-0.9319
FU6	**6-CM**	55	11.855	0	54.075	55.1976	-0.9013
FU6	**6-CN**	55	12.935	0	58.1	55.2156	-0.9683
FU6	**6-CP**	55	8.08	0	54.88	55.1347	-0.9147
FU6	**6-CQ**	55	8.415	0	56.32	55.1402	-0.9387
FU6	**6-CR**	55	32.6215	0	57.115	55.5437	-0.9519
FU6	**6-CS**	55	30.33	-1	1.9465	55.5055	-1.0324
FU6	**6-CT**	55	27.0125	-1	6.991	55.4502	-1.1165
FU6	**6-CU**	55	24.8635	0	57.931	55.4144	-0.9655
FU6	**6-CV**	55	25.679	0	47.6245	55.428	-0.7937
FU6	**6-CW**	55	15.9795	-1	0.9605	55.2663	-1.016
FU6	**6-CX**	55	14	-1	6.985	55.2333	-1.1164
FU6	**6-CY**	55	10.1215	-1	7.114	55.1687	-1.1186
FU6	**6-CZ**	55	10.674	0	56.682	55.1779	-0.9447
FU6	**6-DA**	55	12.7935	0	45.923	55.2132	-0.7654
FU6	**6-DB**	55	1.4035	-1	5.521	55.0234	-1.092
FU6	**6-DC**	55	0.9965	0	58.398	55.0166	-0.9733
FU6	**6-DD**	54	50.6505	-1	5.2015	54.8442	-1.0867
FU6	**6-DE**	54	51.1	0	56.628	54.8517	-0.9438
FU6	**6-DF**	54	45.512	-1	2.411	54.7585	-1.0402
FU6	**6-DG**	54	44.203	0	57.856	54.7367	-0.9643
FU6	**6-DH**	55	19.8625	-1	7.126	55.331	-1.1188
FU6	**6-DJ**	55	6.7	-1	0.0835	55.1117	-1.0014
FU6	**6-DL**	55	2.1165	0	49.3725	55.0353	-0.8229
FU6	**6-DM**	54	57.989	0	51.0605	54.9665	-0.851
FU6	**6-DN**	54	54.944	0	51.4915	54.9157	-0.8582
FU6	**6-DP**	54	49.539	0	51.036	54.8257	-0.8506
FU6	**6-DQ**	54	48.0295	0	55.339	54.8005	-0.9223
FU6	**6-DR**	54	53.075	-1	8.97	54.8846	-1.1495
FU6	**6-DT**	55	8.1025	-1	8.5145	55.135	-1.1419
FU6	**6-DU**	54	56.0585	0	58.7305	54.9343	-0.9788
FU6	**6-DV**	55	0.638	-1	11.827	55.0106	-1.1971
FU6	**6-DW**	55	27	0	40.5	55.45	-0.675
FU6	**6-DX**	55	22.8	0	40.5	55.38	-0.675
FU6	**6-DY**	55	16.2	0	40.5	55.27	-0.675
FU6	**6-DZ**	55	6.8311	0	45.5009	55.1139	-0.75835
FU6	**6-EA**	54	50.364	-1	2.6958	54.8394	-1.04493

Table 3. C END 08/21 Zooplankton station position (objective 6)

Area	StnID	LatD	LatM	LongD	LongM	DecLat	DecLong
West Gabbard	**WGab1**	51	57.2	2	07.2	51.95333	2.12

Centre for Environment Fisheries & Aquaculture Science

Cefas

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Scientist in Charge
11 May 2021

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