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MFV Audacious

Survey 0523H

Demersal Vessel Charter SIAMISS Survey

PROGRAMME

12 – 23 April 2023

Ports

Loading: Fraserburgh/Peterhead TBC 12 April 2023

Port Call: Scalloway TBC

Unloading: Fraserburgh/Peterhead (TBC), 23 April 2023

In setting the survey programme and specific objectives, etc. the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Lab Notice 34/03).

In addition, the Scientist-in-Charge must formally review the risk assessments for the survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Survey Report to Iain Gibb within eight weeks of a survey ending and the Survey Summary Report (old ROSCOP form) to Matt Geldart within four weeks. In the case of the Survey Summary Report a nil return is required, if appropriate.

Estimated Days Per Project: 12 days, MONKRV (20702)

Fishing Gear: Anglerfish Trawl BT 195 (Supplied by Jackson Trawls)

Objectives

1. To undertake the Scottish Irish Anglerfish Megrin Industry Science Survey (SIAMISS). An internationally co-ordinated demersal trawling survey of Anglerfish (*Lophius piscatorius* and *Lophius budegassa*), Megrin (*Lepidorhombus wiffiagonis*) and Four-Spot Megrin (*Lepidorhombus boscii*) at West of Scotland (ICES area VIa) and the North Sea (ICES area IVa).
2. To collect species distribution, length frequency and biological data of Anglerfish (*Lophius piscatorius* and *Lophius budegassa*), Megrin (*Lepidorhombus wiffiagonis*), Four-Spot Megrin (*Lepidorhombus boscii*) Cod (*Gadus morhua*), Blue Skate (*Dipturus batis*) and Flapper Skate (*Dipturus intermedius*).
3. To collect additional species distribution, length frequency and biological data in connection with the UK Workplan and Data Collection Framework (DCF).

Procedures

General

The (Scottish Irish Anglerfish Megrim Industry Science Survey (SIAMISS) trawl survey follows a set of protocols drawn up by an industry science survey planning group made up of Marine Scotland & Marine Institute scientists and fishing industry representatives. These protocols share much in common with the sampling regimes described in the Marine Scotland SOPs for demersal trawl surveys and the Manual of the IBTS North Eastern Atlantic Surveys. *Series of ICES Survey Protocols SISP 15. 92 pp.* <http://doi.org/10.17895/ices.pub.3519>.

Loading of all trawl patching and equipment will take place on the 12th of April with rigging and testing being completed on the same day. The trawl will be supplied by Jackson Trawls already rigged to the ground gear. Loading of the scientific gear will take place on the same day. Charter vessel *Audacious* will sail as soon as possible on the 12th of April. Once safety drills have been completed, charter vessel *Audacious* will proceed NW into the Moray Firth where the first predefined station doubling as a shakedown trawl will be completed in order to check the net configuration, equipment functionality and the SCANMAR units. The route taken to complete the survey will be weather dependent and formulated close to survey departure. It is likely charter vessel *Audacious* will work North and West and complete the West Coast (VIa) survey area initially before a possible port call to land marketable fish in Scalloway. Following the port call, the remaining stations will be completed in the North sea before charter vessel *Audacious* makes for a NE (TBC) port for unloading. An operational daily survey plan will be formulated by the SIC subsequent to meetings with the charter vessel *Audacious*' Master.

Trawling

This is a semi-random-stratified survey design with trawl stations being distributed within 10 predefined strata that cover ICES areas IVa and VIa (See Figures 1.). Fishing operations will be conducted 18 hrs a day with scientific staff working throughout whilst ensuring adequate WTR rest breaks. A total of 34 primary stations and 59 alternative stations have been generated for the charter vessel *Audacious* (Tables 2 and 3 respectively).

The aim is for the 34 primary stations to be undertaken on suitable ground as near as to the specified station position, with the midpoint of the tow intersecting with the position. If not possible, then the tow will be conducted within a 5 nm radius. If this is not possible then the nearest suitable alternative station located within the same stratum will be used. Depending on survey progress, additional effort will be conducted in each strata utilising alternative stations to ensure maximum resolution in each of the survey strata where possible.

One trawl of 60 minutes duration will be made at each sampling station unless circumstances dictate. Trawling operations will occur in waters up to a maximum depth of 500m. The SCANMAR system will be used to monitor wing spread, door spread and distance covered during each haul. The charter vessel *Audacious*' echosounder will be utilised throughout the survey. Bottom contact data from each trawl will also be collected using the NOAA bottom contact sensor which will be mounted in the centre of the ground-gear.

Trawls will not be conducted where possible in highly-sensitive marine protected areas on the advice of JNCC and NatureScot. The nearest suitable alternative station in the same stratum shall be chosen if the trawl cannot be conducted within a 5nm buffer from the position outside the MPA.

Fish Sampling

Catches will be worked up according to the protocols for Marine Scotland Anglerfish surveys which are similar in principle to the protocols as described in the Manual of the IBTS North

Eastern Atlantic Surveys. *Series of ICES Survey Protocols SISP 15*. 92 pp. <http://doi.org/10.17895/ices.pub.3519>. The sampling methodology will follow the SIAMISS Fish Sampling V1.0 SOP. In addition to the routine sampling, biological data and samples will be collected for selected ad-hoc species if time allows.

The entire catch will be examined for species catch weight and length frequency when possible with biological data collected from the species detailed in table 1.

Post Survey

All scientific staff and equipment will be unloaded on 23rd April 2023.

Normal contacts will be maintained with the Laboratory.

Submitted:

R. Gillespie-Mules

07th April 2023

Approved:

I. Gibb

10th April 2023

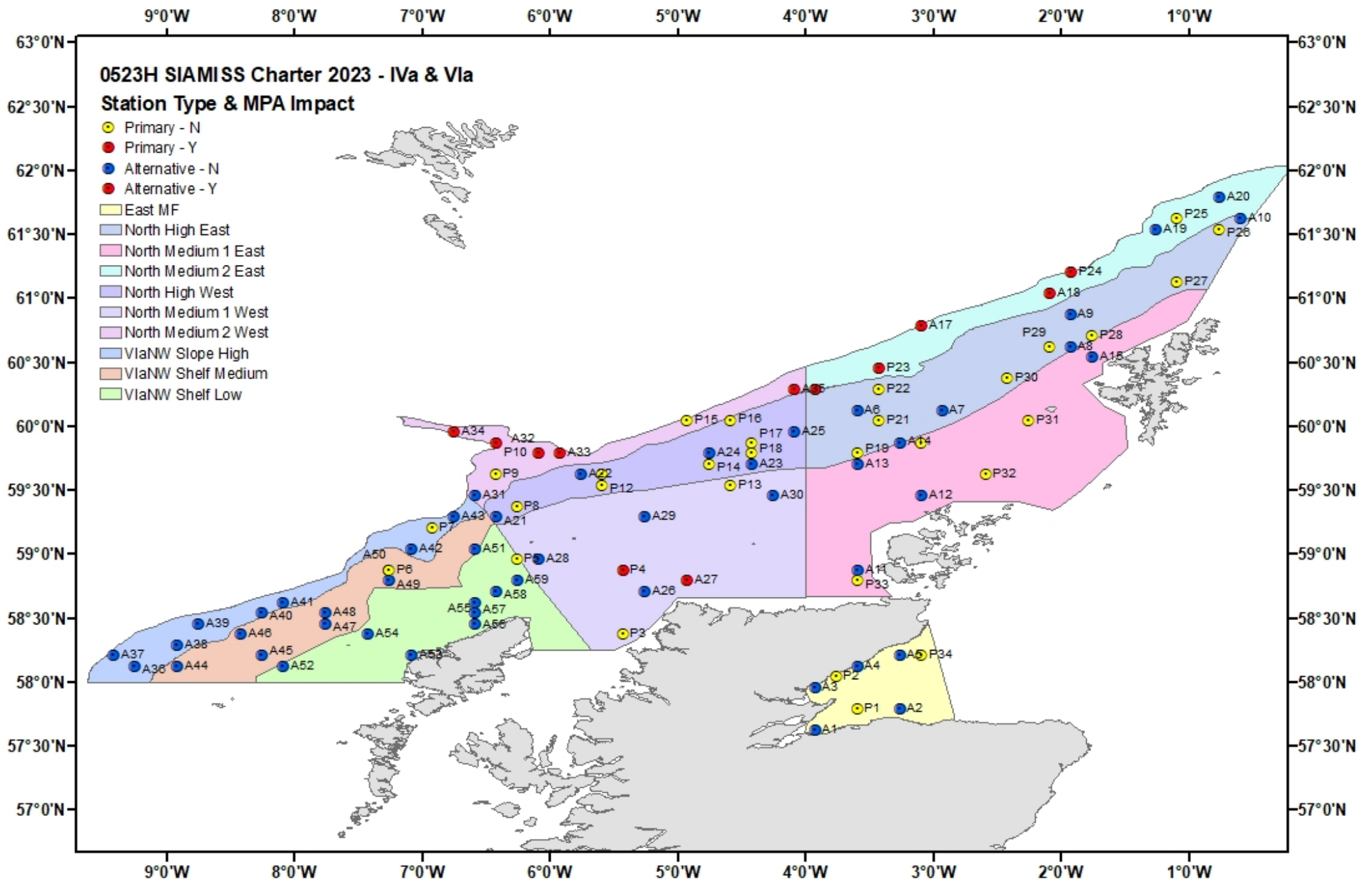


Figure 1: Chart showing the 0523H primary and alternative trawl positions and SIAMISS strata for the North Sea (IVa) & West Coast (VIa).

Table 1: Biological sampling targets for 0523H. (* Individual weight, gutted weight, sex, maturity and age; ** Individual weight, gutted weight, sex and maturity; *** Individual weight, sex and maturity – males only)

0523H Biological Sampling Targets	
Species	Target
<i>L. piscatorius</i> (ANG) *	All
<i>L. budegassa</i> (BAN) *	All
<i>L. wiffiagonis</i> (MEG) **	1 / cm
<i>L. boscii</i> (FME) **	1 / cm
<i>G. morhua</i> (COD) *	1 / cm
<i>A. radiata</i> (STY) ***	1 / cm
All other skates and rays ***	All - except CRA, SPY and TRA

0523H Primary (Core) Trawl Stations						
Station Number	Stratum	Depth	Lat (DDM)	Long (DDM)	Lat (DD)	Long (DD)
P1	East.MF	NA	57 47.5N	003 35W	57.7917	-3.5833
P2	East.MF	NA	58 2.5N	003 45W	58.0417	-3.75
P3	North.M1.W	0-140	58 22.5N	005 25W	58.375	-5.4167
P4	North.M1.W	0-140	58 52.5N	005 25W	58.875	-5.4167
P5	VlaNW.Shelf.L	0-140	58 57.5N	006 15W	58.9583	-6.25
P6	VlaNW.Shelf.M	140-200	58 52.5N	007 15W	58.875	-7.25
P7	VlaNW.Slope.H	200-500	59 12.5N	006 55W	59.2083	-6.9167
P8	North.H.W	140-200	59 22.5N	006 15W	59.375	-6.25
P9	North.M2.W	200-500	59 37.5N	006 25W	59.625	-6.4167
P10	North.M2.W	200-500	59 52.5N	006 25W	59.875	-6.4167
P11	North.H.W	140-200	59 37.5N	005 35W	59.625	-5.5833
P12	North.H.W	140-200	59 32.5N	005 35W	59.5417	-5.5833
P13	North.M1.W	0-140	59 32.5N	004 35W	59.5417	-4.5833
P14	North.H.W	140-200	59 42.5N	004 45W	59.7083	-4.75
P15	North.M2.W	200-500	60 2.5N	004 55W	60.0417	-4.9167
P16	North.H.W	140-200	60 2.5N	004 35W	60.0417	-4.5833

0523H Primary (Core) Trawl Stations

Station Number	Stratum	Depth	Lat (DDM)	Long (DDM)	Lat (DD)	Long (DD)
P17	North.H.W	140-200	59 52.5N	004 25W	59.875	-4.4167
P18	North.H.W	140-200	59 47.5N	004 25W	59.7917	-4.4167
P19	North.H.E	140-200	59 47.5N	003 35W	59.7917	-3.5833
P20	North.M1.E	0-140	59 52.5N	003 5W	59.875	-3.0833
P21	North.H.E	140-200	60 2.5N	003 25W	60.0417	-3.4167
P22	North.H.E	140-200	60 17.5N	003 25W	60.2917	-3.4167
P23	North.M2.E	200-500	60 27.5N	003 25W	60.4583	-3.4167
P24	North.M2.E	200-500	61 12.5N	001 55W	61.2083	-1.9167
P25	North.M2.E	200-500	61 37.5N	001 5W	61.625	-1.0833
P26	North.H.E	140-200	61 32.5N	000 45W	61.5417	-0.75
P27	North.H.E	140-200	61 7.5N	001 5W	61.125	-1.0833
P28	North.H.E	140-200	60 42.5N	001 45W	60.7083	-1.75
P29	North.H.E	140-200	60 37.5N	002 5W	60.625	-2.0833
P30	North.H.E	140-200	60 22.5N	002 25W	60.375	-2.4167
P31	North.M1.E	0-140	60 2.5N	002 15W	60.0417	-2.25
P32	North.M1.E	0-140	59 37.5N	002 35W	59.625	-2.5833
P33	North.M1.E	0-140	58 47.5N	003 35W	58.7917	-3.5833
P34	East.MF	NA	58 12.5N	003 5W	58.2083	-3.0833

0523H Alternative Trawl Stations

Station Number	Stratum	Depth	Lat (DDM)	Long (DDM)	Lat (DD)	Long (DD)
A1	East.MF	NA	57 37.5N	003 55W	57.6250	-3.9167
A2	East.MF	NA	57 47.5N	003 15W	57.7917	-3.2500
A3	East.MF	NA	57 57.5N	003 55W	57.9583	-3.9167
A4	East.MF	NA	58 7.5N	003 35W	58.1250	-3.5833
A5	East.MF	NA	58 12.5N	003 15W	58.2083	-3.2500
A6	North.H.E	140-200	60 7.5N	003 35W	60.1250	-3.5833
A7	North.H.E	140-200	60 7.5N	002 55W	60.1250	-2.9167
A8	North.H.E	140-200	60 37.5N	001 55W	60.6250	-1.9167
A9	North.H.E	140-200	60 52.5N	001 55W	60.8750	-1.9167
A10	North.H.E	140-200	61 37.5N	000 35W	61.6250	-0.5833
A11	North.M1.E	0-140	58 52.5N	003 35W	58.8750	-3.5833
A12	North.M1.E	0-140	59 27.5N	003 5W	59.4583	-3.0833
A13	North.M1.E	0-140	59 42.5N	003 35W	59.7083	-3.5833
A14	North.M1.E	0-140	59 52.5N	003 15W	59.8750	-3.2500
A15	North.M1.E	0-140	60 32.5N	001 45W	60.5417	-1.7500
A16	North.M2.E	200-500	60 17.5N	003 55W	60.2917	-3.9167
A17	North.M2.E	200-500	60 47.5N	003 5W	60.7917	-3.0833
A18	North.M2.E	200-500	61 2.5N	002 5W	61.0417	-2.0833
A19	North.M2.E	200-500	61 32.5N	001 15W	61.5417	-1.2500
A20	North.M2.E	200-500	61 47.5N	000 45W	61.7917	-0.7500
A21	North.H.W	140-200	59 17.5N	006 25W	59.2917	-6.4167
A22	North.H.W	140-200	59 37.5N	005 45W	59.6250	-5.7500
A23	North.H.W	140-200	59 42.5N	004 25W	59.7083	-4.4167
A24	North.H.W	140-200	59 47.5N	004 45W	59.7917	-4.7500
A25	North.H.W	140-200	59 57.5N	004 5W	59.9583	-4.0833
A26	North.M1.W	0-140	58 42.5N	005 15W	58.7083	-5.2500
A27	North.M1.W	0-140	58 47.5N	004 55W	58.7917	-4.9167

A28	North.M1.W	0-140	58 57.5N	006 5W	58.9583	-6.0833
A29	North.M1.W	0-140	59 17.5N	005 15W	59.2917	-5.2500
A30	North.M1.W	0-140	59 27.5N	004 15W	59.4583	-4.2500
A31	North.M2.W	200-500	59 27.5N	006 35W	59.4583	-6.5833
A32	North.M2.W	200-500	59 47.5N	006 5W	59.7917	-6.0833
A33	North.M2.W	200-500	59 47.5N	005 55W	59.7917	-5.9167
A34	North.M2.W	200-500	59 57.5N	006 45W	59.9583	-6.7500
A35	North.M2.W	200-500	60 17.5N	004 5W	60.2917	-4.0833
A36	VlaNW.Slope.H	200-500	58 7.5N	009 15W	58.1250	-9.2500
A37	VlaNW.Slope.H	200-500	58 12.5N	009 25W	58.2083	-9.4167
A38	VlaNW.Slope.H	200-500	58 17.5N	008 55W	58.2917	-8.9167
A39	VlaNW.Slope.H	200-500	58 27.5N	008 45W	58.4583	-8.7500
A40	VlaNW.Slope.H	200-500	58 32.5N	008 15W	58.5417	-8.2500
A41	VlaNW.Slope.H	200-500	58 37.5N	008 5W	58.6250	-8.0833
A42	VlaNW.Slope.H	200-500	59 2.5N	007 5W	59.0417	-7.0833
A43	VlaNW.Slope.H	200-500	59 17.5N	006 45W	59.2917	-6.7500
A44	VlaNW.Shelf.M	140-200	58 7.5N	008 55W	58.1250	-8.9167
A45	VlaNW.Shelf.M	140-200	58 12.5N	008 15W	58.2083	-8.2500
A46	VlaNW.Shelf.M	140-200	58 22.5N	008 25W	58.3750	-8.4167
A47	VlaNW.Shelf.M	140-200	58 27.5N	007 45W	58.4583	-7.7500
A48	VlaNW.Shelf.M	140-200	58 32.5N	007 45W	58.5417	-7.7500
A49	VlaNW.Shelf.M	140-200	58 47.5N	007 15W	58.7917	-7.2500
A50	VlaNW.Shelf.M	140-200	58 52.5N	007 15W	58.8750	-7.2500
A51	VlaNW.Shelf.M	140-200	59 2.5N	006 35W	59.0417	-6.5833
A52	VlaNW.Shelf.L	0-140	58 7.5N	008 5W	58.1250	-8.0833
A53	VlaNW.Shelf.L	0-140	58 12.5N	007 5W	58.2083	-7.0833
A54	VlaNW.Shelf.L	0-140	58 22.5N	007 25W	58.3750	-7.4167
A55	VlaNW.Shelf.L	0-140	58 27.5N	006 35W	58.4583	-6.5833
A56	VlaNW.Shelf.L	0-140	58 32.5N	006 35W	58.5417	-6.5833
A57	VlaNW.Shelf.L	0-140	58 37.5N	006 35W	58.6250	-6.5833

A58	VlaNW.Shelf.L	0-140	58 42.5N	006 25W	58.7083	-6.4167
A59	VlaNW.Shelf.L	0-140	58 47.5N	006 15W	58.7917	-6.2500