Not to be cited without prior reference to Marine Scotland, Marine Laboratory, Aberdeen.

MRV *Alba na Mara*

Survey 0414A

PROGRAMME

25 March – 01 April 2014

Ports

Loading: Fraserburgh, 24 March 2014
Unloading: Fraserburgh, 01 April 2014

In setting the cruise 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 cruise with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Cruise Report, to I Gibb and the Cruise Summary Report (old ROSCOP form) to M Geldart, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate.

Personnel

Alba na Mara

K Summerbell (SIC)
C Hall

Charter Boat (MV *Solstice*) 25 – 30 March 2014

P Copland (SIC on charter)
B O'Neill 25 – 27 March
R O'Hara Murray 28 – 30 March
Vistor: Hull University (tbc)

Costs to Project: 8 days – 20119

Equipment

Alba na Mara

- BT201 - Nephrops fishing trawl
- RCTV and umbilical cable
- Sequoia LISST 100X particle size analyser (x2)
- Scanmar units
- Rubber matting
- Day grab (including table)
- Roller clump
- Modified TV sledge
- Video cameras and flashback recorders

Charter Boat

- Reson SeaBat 7125 multibeam echosounder.
- Sonardyne Scout acoustic positioning system.

Objectives

- To calibrate readings between a LISST 100X and the Reson SeaBat 7125 system on re-suspended sediment at different depths.

Protocols

Scientific personnel will join *Alba na Mara* on the 24 March to load equipment and set up the RCTV system. Staff will stay aboard overnight to allow *Alba* to leave harbour first thing the following day and head towards the work site north of Banff (Figure 1). In shallow waters (~30m) the RCTV system will be deployed and tested to ensure everything is functioning correctly. Two further deployments will be performed if time allows, one with the fishing gear, the other with the modified sledge (with metal sheet attached to create sediment plume). These will allow the pilot to practice manoeuvring around the trawl and see if the RCTV is able to move out to the trawl door sediment plume.

On 25 March the charter boat personnel will set up and test the Reson SeaBat 7125 and Sonardyne Scout positioning systems onboard MV Solstice. Once complete they will make their way out to rendezvous with *Alba* at the work site and practice manoeuvring and sampling.

The working pattern should remain similar for most days (26 – 30 March). *Alba* will lift anchor and steam out to the work site. The trawl or sledge will be deployed first, followed by the RCTV with the LISST 100x attached. Sampling the sediment plume will then commence at fixed distances behind the plume generator (Figure 2). Once the charter boat arrives sampling will alternate between the Reson 7125 and LISST.

The LISST sampling involves flying the RCTV to locate the object generating the plume to be sampled (door or sledge). Then manoeuvring it into the sediment plume approximately 0.5 m above the seabed, at fixed distances of 10, 20, 30, 40, 50, and 70 m behind, and holding it in the cloud for three minutes. Between each distance the RCTV needs to rises up out the plume, to a safe height. The TV winch then pays out the cable to the required distance, before the RCTV descends back into the plume.

There will be an acoustic positioning transponder attached to each trawl door or the sledge when deployed. The positioning system installed on the charter boat should establish its location relative to these transponders. The Reson system can then identify the object once it's directly above. A float line will then be deployed from the deck mounted winch on *Alba* to this distance, and then moved back to the fixed sampling distances. The float line is believed to be an easier reference point for the skipper of the charter boat to maintain position with. However, if the positioning system proves successful on its own, the float line might be abandoned. Sampling with the Reson will be at the same distances as the LISST. When in position the output from the Reson system will be recorded for one minute. GPS and acoustic positioning data will also be recorded during sampling exercises.

If the RCTV is unable to reach the door plume then Reson and LISST sampling will focus on the sledge plume only. In the event that the RCTV system doesn't work or unable to position it in the sediment plume, sampling will then be conducted with the LISST mounted on the

sledge and towed behind the roller clump via chains at fixed distances of 10 and 20 m. The sledge has to be removed to allow Reson sampling as the metal frame causes interference.

Sampling will initially focus on sandy sediment, targeting depths of 30, 60 and 90 m (Figure 1). If time allows muddy sand sediment will also be investigated at 60 and 100 m. Sediment day grab samples will be taken from each sediment type/depth area sampled. These will be carried out in any spare time, or on the 31 March before heading back to Fraserburgh.

Normal contacts will be maintained with the Laboratory.

Submitted:
K Summerbell
3 March 2014.

Approved:
I. Gibb
20 March 2014.

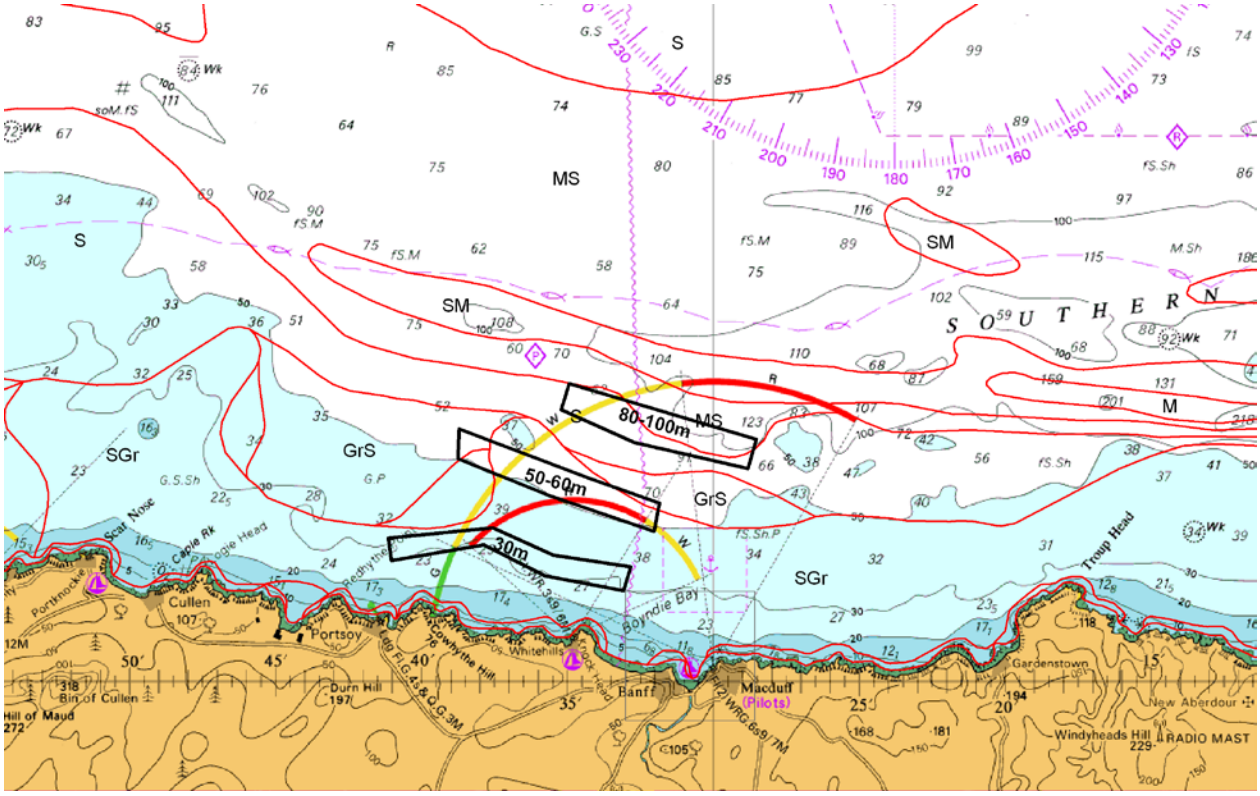

Figure 1: Sampling area north of Banff.

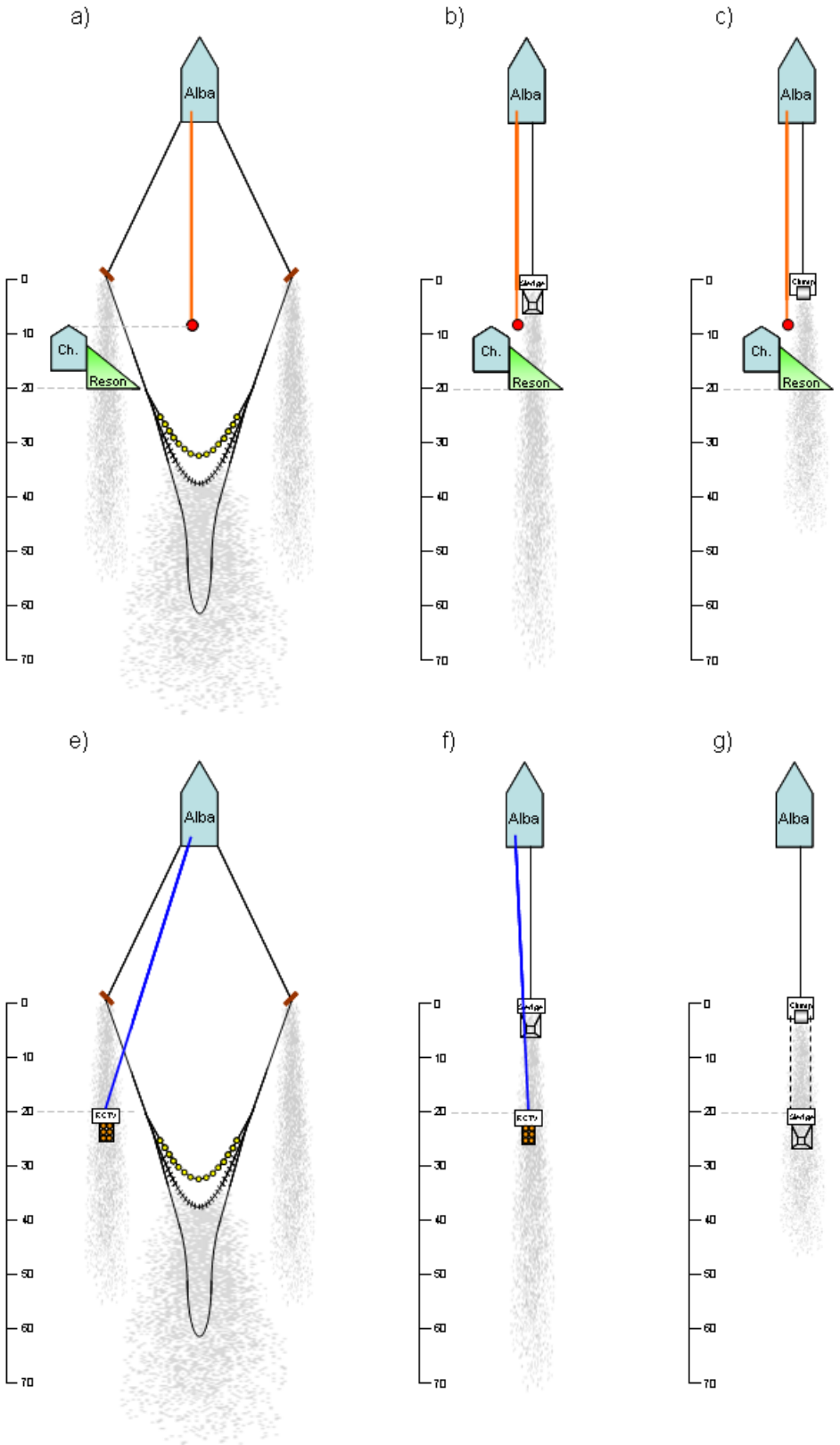

Figure 2: Sediment plume sampling strategies. The charter boat using the Reson 7125 to sample the a) door, b) sledge and c) roller clump. The RCTV fitted with the LISST to sample the e) door and f) sledge. The sledge fitted with the LISST to sample the clump (h – sledge attached to the clump with chains).