

AQUA-FACT

ADCP DEPLOYMENTS AT
ACHILL ISLAND AND SHANNON ESTUARY.

JUNE/JULY 2004



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**REPORT TO
KIRK MCCLURE MORTON
CONSULTANT ENGINEERS**

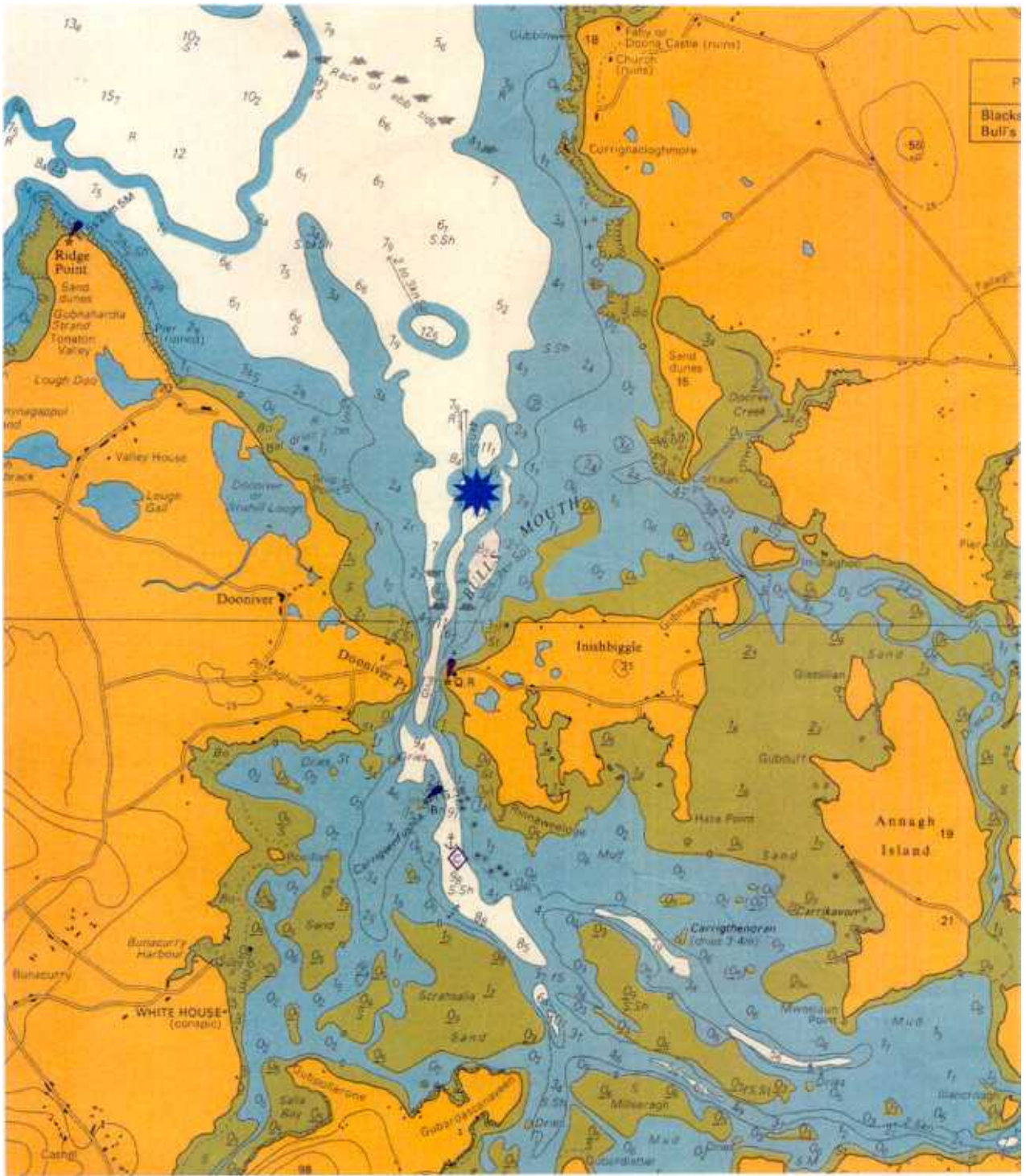
**AQUA-FACT INTERNATIONAL SERVICES LTD.,
12 KILKERRIN PARK, TUAM ROAD, GALWAY
TEL: 091 756812, FAX: 091 756888
E-MAIL: info@aquafact.ie
WEB PAGE: www.aquafact.ie**

Introduction

Aqua-Fact International Services Ltd. was commissioned by Kirk McClure Morton, Consultant Engineers, to deploy Acoustic Doppler Current Profilers (ADCP's) at the Bulls Mouth, Achill Island and in the Shannon Estuary south of Scatterry Island for a period of 30 days.

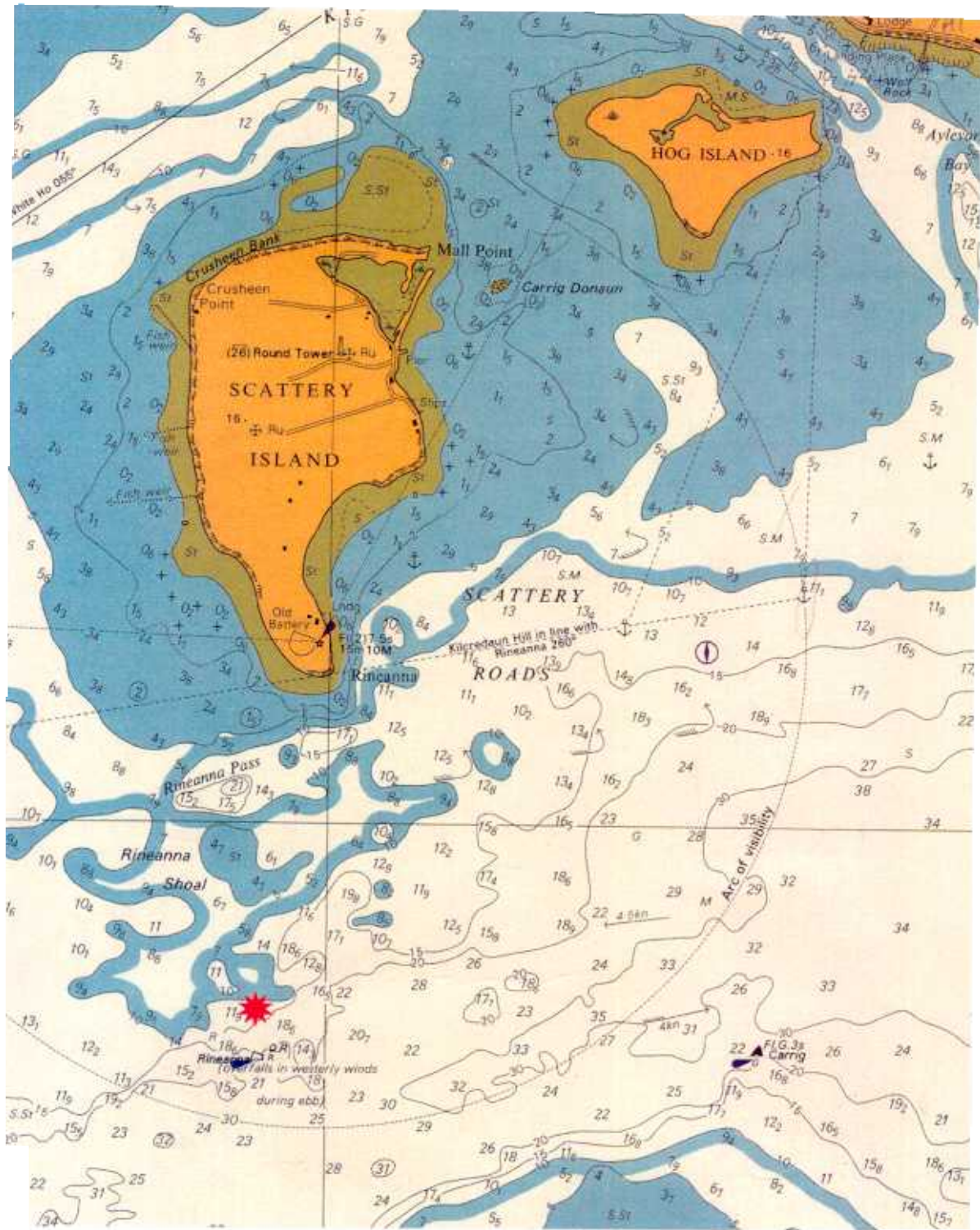
The ADCP deployed at the Bulls Mouth was located at 54° 00.598N, 9° 55.204W (Figure 1). It was deployed on 25th June 2004 and retrieved on 27th July 2004. The bottom was relatively flat consisting of a coarse gravelly sand with occasional larger jagged boulders. Water depth was approximately 14m at the time of deployment. The position of the ADCP was recorded by DGPS.

The ADCP deployed in the Shannon Estuary was located at 52° 35.656N, 9° 31.308W (Figure 2). It was deployed on 24th June 2004 and retrieved on 28th July 2004. The bottom in the immediate area consisted of large boulders and areas of coarse gravelly sand along a steep gradient running from approximately 5 m to 20 m, which designates the southern part of Rineanna Shoal. The Adcp was placed on a relatively flat gravelly area in approximately 14 m. The position of the ADCP was recorded by DGPS.



 ADCP

Figure 1. Location of the ADCP at Bulls Mouth, Achill Island deployed from 25-06-04 to 27-07-04.



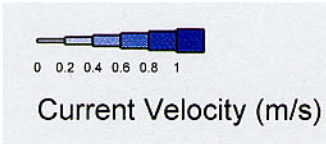
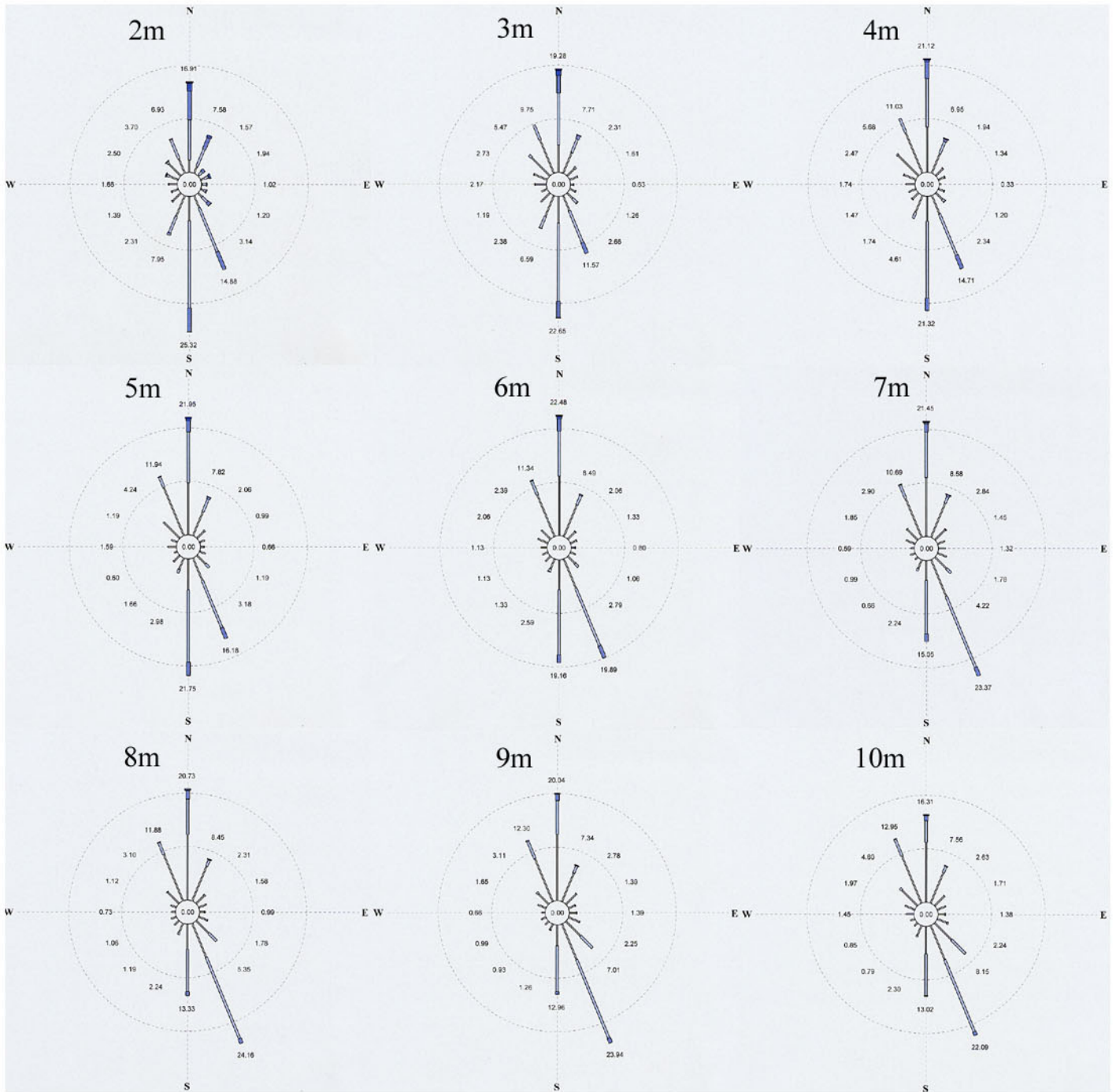
 = ADCP Location

Figure 2. Location of the ADCP deployed in Shannon Estuary from 24-06-04 to 28-07-04.

Results

The output from both ADCP's following their retrieval was checked by quality control software prior to further analysis. The resulting data is presented in Appendix I. Due to tidal ranges, data from the top meter is sporadic while the bottom four meters is not recorded by the ADCP's. This gave a data set for each 1 m depth between 2 and 10 m.

Current velocity and direction rose's were generated from the data for each depth interval for both Achill and Shannon and these are presented as Figure 3 and Figure 4, respectively. These roses clearly outline the uniformity of the current direction at both locations with significantly greater currents recorded at Shannon ($> 2\text{ms}^{-1}$) for part of the tidal cycle compared to Achill.



Calms included at center.
Rings drawn at 10% intervals

Figure 3. Current velocity and direction roses presenting the data collected by an ADCP deployed at Bulls Mouth, Achill Island, from 25-6-04 to 27-7-04

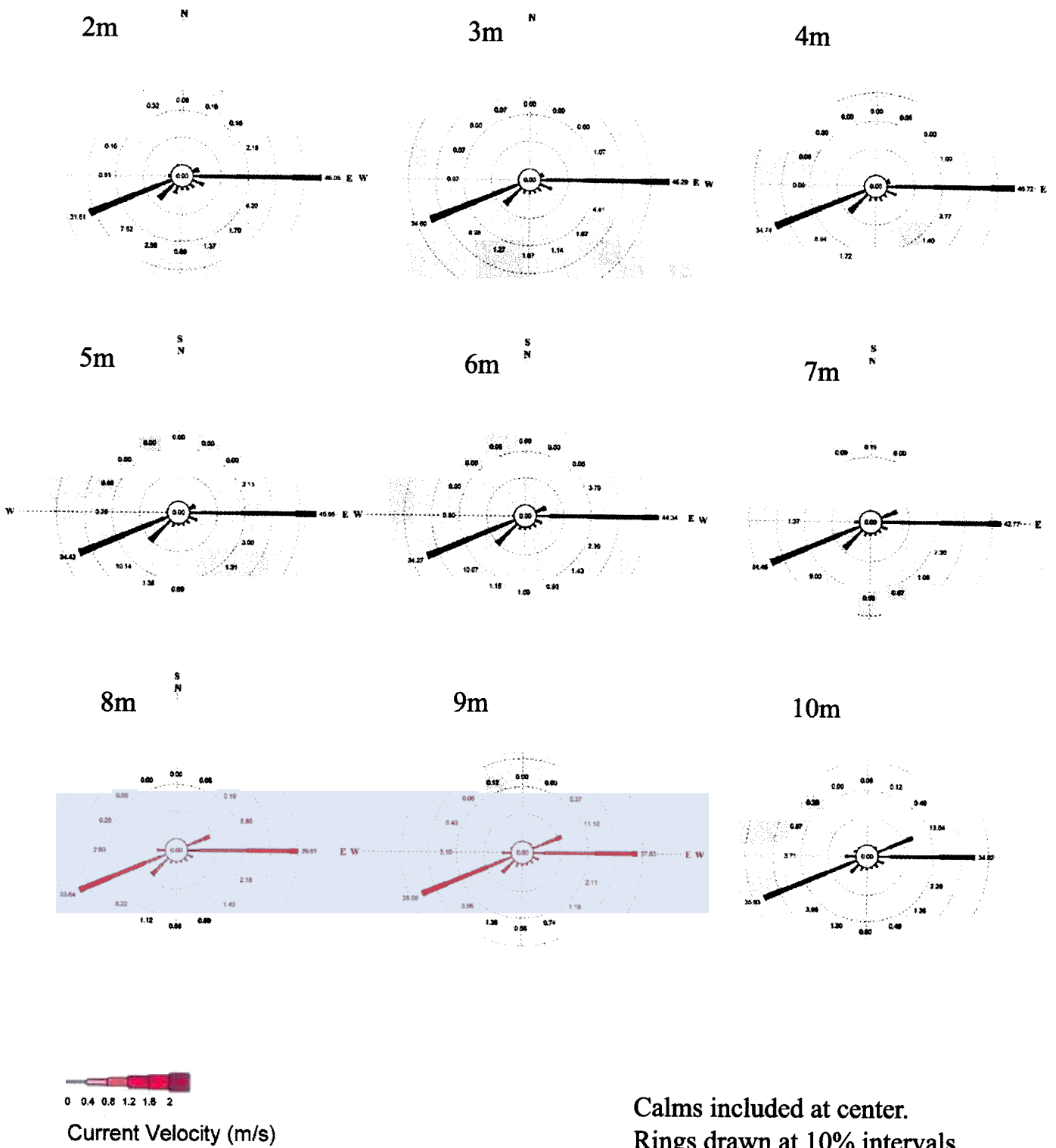


Figure 4. Current velocity and direction roses presenting the data collected by an ADCP deployed in the Shannon estuary from 24-6-04 to 28-7-04