



Underwater Inspection Report

Knightstown Breakwaters

Mooring Inspection

April 2026

Client: O Driscoll Plant Hire LTD

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Issue Record

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Date:	22/04/2026	

Document Approval: Marine Specialists Ltd		
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Date:	22/04/2026	

Record of Issue

Version No: 1.0

This version has been revised and amended as follows:

Date	Details of Revision	Authorisation

1.0 INTRODUCTION

This report contains a summary of the findings of a detailed underwater inspection of the breakwater moorings at Knightstown, Valentia County Kerry.

A comprehensive log of the inspection findings is available in the “Dive Survey Results” a separate document which accompanies this report.

The inspection concentrated on the various underwater components of the breakwater mooring line.

Valman Marine Ltd. conducted the inspection for o Driscoll Plant Hire Ltd on the 7th and 8th of April 2026

The visibility during the inspection was approx. 2.5m

2.0 METHODOLOGY

In line with current diving legislation a five-person dive team conducted the underwater inspection. The dive team operated from Valman Marines licenced vessel. The dive team conducted a visual inspection of each mooring line, paying particular attention to any defects or areas of deterioration.

The dive team consisted of the following:

- Dive Supervisor-Mike Moriarty
- Diver- Stephen riordan
- Diver- Ultan O Shea
- Diver- Derrick Browne
- Diver- Jamie Horgan



Figure 1 Valman marines dive support vessel



Figure 2 Valman marines Dive Control

3.0 Survey Findings

A summary of the findings for each of the 2 breakwater Legs are presented below.

3.1 Leg B

- Some contact between mooring lines-no significant wear.
- 6.5t shackles showing significant signs of wear
- Heavy marine growth on majority of moorings.
- A number of Angel weights have become detached
- No tension on two moorings
- One top tensioning rope is missing/broken
- Significant wear on angel weight plates. Heavy elongation of holes in the plates as well as point loading pins of shackles and accelerating wear on shackles

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A significant development is the deteriorating condition of the 6.5t shackles connecting the eyes of the 14mm Dyneema whip.

See Figure 3

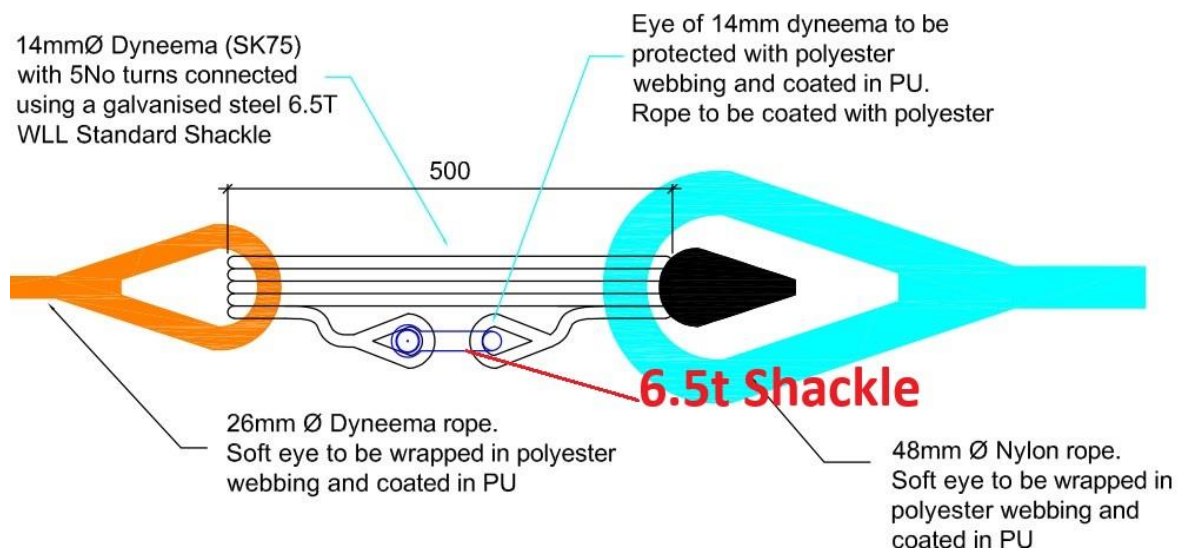


Figure 3 Diagrammatic illustration showing location of 6.5t shackle

At least fifty percent of the shackles on leg b and leg c were buried and not accessible To the working diver with another twenty percent with with in excess of ninety percent wear to the shackle. The dyneema whip between both eyes appeared to be in fair - good condition with heavy growth.



Figure 4 Example of 6.5t shackle with 90% depletion i

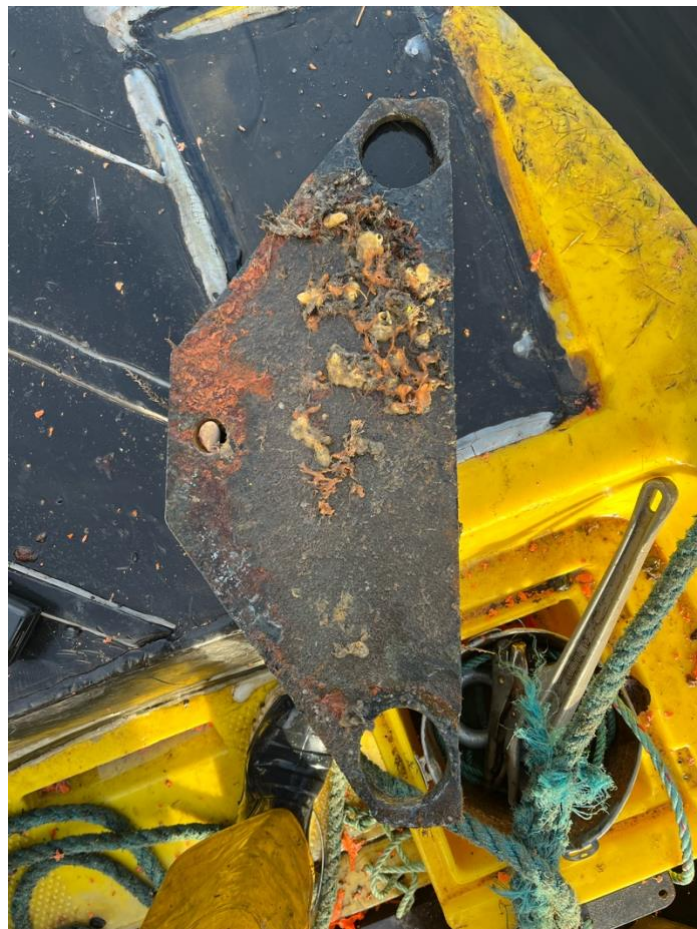




Figure 5 And 6 angel weight plate and evidence of elongation

The angel weight plates are experiencing significant deterioration. There is heavy elongation of the holes in the plates, which is likely due to repeated point loading from shackles. This elongation, combined with accelerating wear on both the plates and the shackles, indicates that the structural integrity of the angel plates is being compromised. The damage is further evidenced by the deformation visible in Figures 5 and 6, which show how the plates have been affected over time. Continuous use and heavy loading are contributing to this wear, making it a critical area for maintenance and monitoring.

Additionally, it should be noted that the holes in the angel weight plates are positioned too close to the edge. This lack of sufficient material around the holes leaves inadequate room for natural wear, which not only compromises the plate integrity but also accelerates the wear on the shackles themselves. As a result, the combined effect of hole placement and heavy loading is exacerbating the overall deterioration of both components.

3.2 Leg C

- Extensive contact between various mooring lines,
- Bottom shackles-no major defects.
The majority were found to be buried and were not accessible for a full evaluation by the working diver.
- Heavy marine growth on majority of moorings.
- Mooring S35 evidence of significant wear on the Angle Plate eyes
- Two top tensioning ropes are missing/broken
- Damage to pontoons #20 and #21 (the dog leg) as a result of contact between the two units
- Very heavy wear on angel weight plates. Heavy elongation of holes in the plates as well as point loading pins of shackles and accelerating wear on shackles

4.0 CONCLUSION

Based on the findings of this survey, it is evident that the mooring system associated with Leg B and Leg C is experiencing considerable wear and damage, particularly around the 6.5t shackle connecting both ends of the Dyneema whip (fig 3) . One area of particular concern are the angel weight plates, which have emerged as a critical weak point in the system. The holes in these plates are positioned too close to the edge, providing insufficient space for wear and resulting in pronounced elongation. This design flaw not only accelerates the deterioration of the plates themselves but also leads to excessive point loading and rapid wear on the shackles. Addressing these issues is essential to ensure the long-term integrity and reliability of the mooring system.