

ENGINEERING ACTIVITIES FOR DECOMMISSIONING PROGRAMMES OFFSHORE O&G INSTALLATIONS

INTRODUCTION:

In the years to come, offshore decommissioning activities will inevitably increase as existing field infrastructures approach the end of their useful life.

Decommissioning programmes for abandoned or disused offshore O&G installations have the scope to ensure safety of navigation, fishing and protection of marine environment.

Being decommissioning process notoriously expensive, national and International standards do not impose an absolute obligation to remove offshore installations but provide guidelines to the Operators to evaluate several scenario:

- Total removal;
- Partial removal
- Re-using for new scope

DESCRIPTION OF THE ANALYSES:

Tecnoconsult performs engineering assessment of offshore installations to be decommissioned based on:

- historical inspection data and surveys
- meocean and geotechnical data
- available GIS datasets providing info on performed intervention works

The following aspects are analysed:

- assessment of the marine environment in terms of hydrodynamic forces
- evolution of bathymetric profiles in areas affected by sandbanks and/or sediment transportation phenomena
- scouring and burial trend for offshore infrastructures;
- mitigation strategies

FINDINGS:

As result of the analyses, the following results are obtained:

- Historical seabed morphology changes in elevation and pipe exposure/free spans evolutions due to seabed movements
- Pipelines and structures burial trends over the years
- Pipelines and structures tendency to become exposed due to future evolution of seabed movements
- Intervention work definition

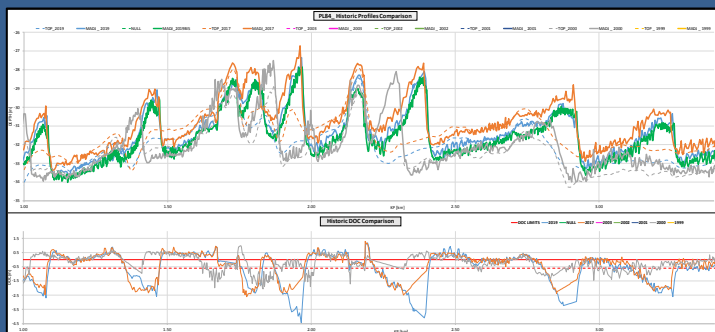


Figure 1 – Typical Top of Pipe, seabed profiles and Depth of Burial trends over the years

MARINE SANDWAVES:

Sandwaves are one of a range of bed forms that have been studied in the laboratory, rivers, deserts and the sea.

In the sea, most sandwave classifications have been based upon the plan, cross-sectional form and size of the features. This is fairly simply undertaken with present day by means MBES (Multi Beam Echo Sounders) system during offshore survey.

In terms of size feature the following classifications generally used for marine sandwaves:

- **Current ripples:** Wave length normally less than 30 cm although exceptionally with wavelengths of up to 60 cm;
- **Mega-ripples:** Wave length greater than 60cm (and less than 30 m);
- **Sandwaves:** Wave length greater than 30m and up to 100m or more.
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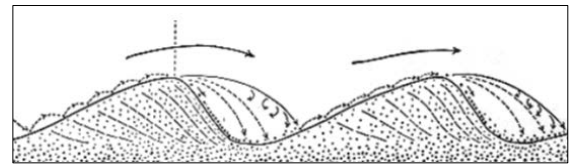


Figure 2 - Typical sandwave profile

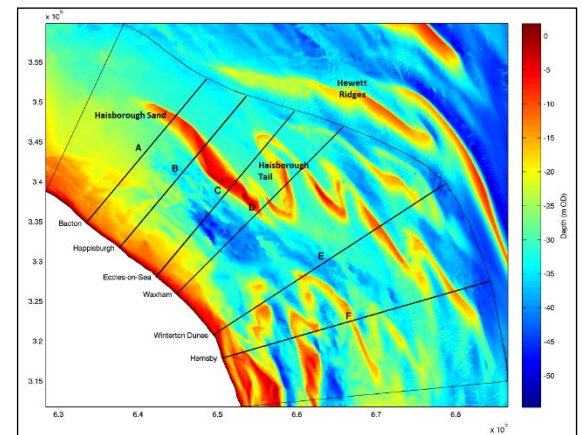


Figure 3 – Typical shoreface transects

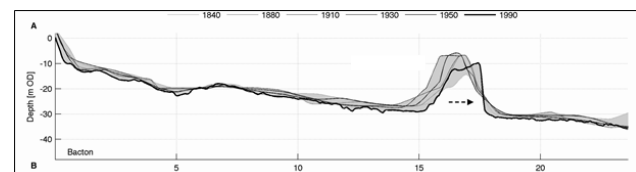


Figure 4 – Typical sandwave migration over the years

MARINE SANDWAVES

