Biofouling and Ballast Management

Management of biofouling, ballast water and Marine Invasive Non-Native Species (MINNS).

Why are they a problem and what can be done?

Biofouling is the unwanted attachment of species to man-made structures. The movement of biofouled structures and vessel ballast water containing viable organisms can result in the release of non-native species into new environments. Some of these species may become invasive, with legal implications and adverse effects on human infrastructure, biodiversity, habitats and functioning of receiving ecosystems.

In the past, this has not been considered a noteworthy problem, however, these species can cause significant financial and ecological effects. Accordingly, guidelines and legislation are increasingly responding to the management of the problem of the introduction of Marine Invasive Non-Native Species (MINNS).

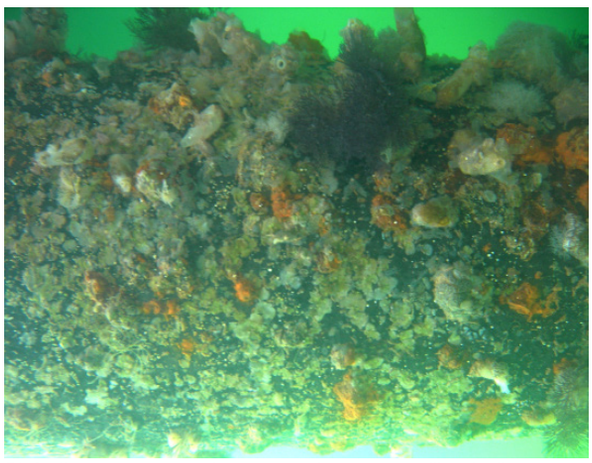
Fugro EMU can offer a number of services that help with those at risk of financial or legislative impacts from hull biofouling, ballast water and invasive species.

Does this problem apply to you?

Depending on the aim, a number of questions need to be asked and answered. Services and advice can subsequently be provided to assist with the specific problem. As an example, some sample questions relevant to vessels include:

- Does your vessel currently have any biofouling?
- Do you undertake management of hull fouling?
- Do you assess fouling levels and risk from MINNS?
- Does the target region have restrictions on biofouling?
- Does your vessel take on / discharge ballast water?
- Does your vessel have a ballast water treatment system?
- Do you move between different biogeographic regions?
- Does the target region have restrictions on ballast water?
- Are you aware of legislation, guidelines and legal implications?

Ballast water can release MINNS into new environments



Biofouling occurs on marine man-made structures, like pipelines.

Biofouling can affect the maintenance requirements.

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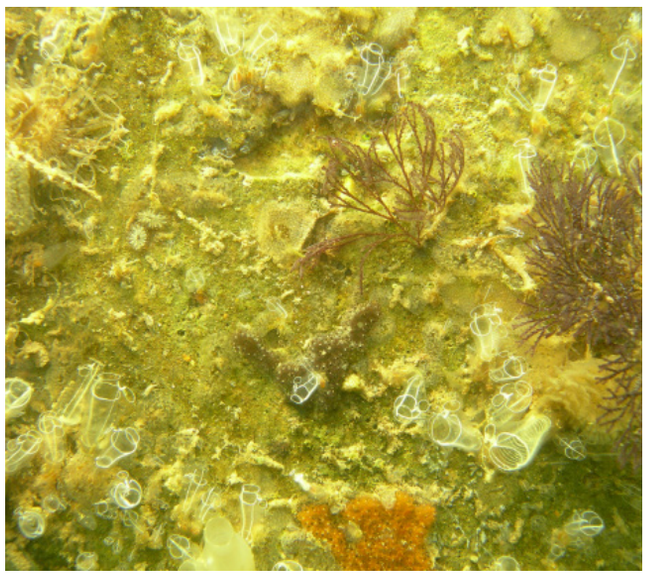
How can we help?

To support the management of biofouling and ballast, Fugro EMU can:

- Give context of legal / policy requirements
- Provide advice upon relevant engineering solutions
- Plan and execute specifically tailored surveys to assess fouling communities / ballast water for MINNS introduction
- Assess these communities for risk of transport and related ecological / environmental effects
- Provide advice on appropriate management and develop best practice guidance for clients to minimise risk
- Create an Environmental Management Plan to detail adherence to guidance, legislation and best practice

What will these services achieve?

- Provision of information about the MINNS legal implications
- Management of biofouling through the informed use of the most suitable measures
- Assessment of your vessel / structure to provide the evidence required for entry into certain regions and ports
- Assistance with drag (fuel consumption) and corrosion management
- Reduction in maintenance costs



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