



**TECHNICAL CIRCULAR No. 721 of 5<sup>th</sup> March 2022**

To	All Surveyors/Auditors. All flags
Title	<b>Robotic to clean Hull</b>
Reference	Drydock survey

**Robotic Solution to clean Ships Hull**

Keeping ship hull clean offers benefits for the overall running and the environment.

Sailing on open waters sees marine organisms build up over reducing overall performance.

The ITCH solution comprises a semi-autonomous hull cleaning robotic arm which is tethered to a winch on the forecastle deck of the ship.

A semi-autonomous robot can clean ship hulls. Operated by seafarers at sea, rather than scheduled in port- this new solution offers many environmental and ship performance in port, this new solution offers environmental and ship performance benefits.

Hull cleaning to remove marine debris and species built up over time traditionally takes place at port between voyages. However, a severe build-up requires harsher cleaning processes that see hull hydrodynamics being degraded which can lead to increased fuel consumption and CO<sub>2</sub> emissions.

Sailing on open waters sees marine organisms build up over ship hull, reducing overall performance and can cause several maintenance issues. If frequent cleaning does not occur a clumpy slimy layer, known as biofilm (a layer of microorganism and bacteria) will build up on the ship's hull.

In severe cases where cleaning has not occurred for some time hulls can begin to accumulate barnacles and seaweed which can amount to a significant weight increases for a ship. The additional weight of these marine stowaways, combined with the weight of the hull coating, results in increased drag for the vessel which can result in fuel penalties.

Frequent cleaning of a ship hull offers a variety of benefits such as reduced operational costs due to fuel saving which in turn reduces the amount of greenhouse gases produced.

**CONARINA Head Office**

6505 Blue Lagoon Dr. Suite 455

Miami, Fl., 33126

Tel: 1 (786) 558 5288,

Fax: 1 (786) 325 0200,

[joel@conarinagroup.com](mailto:joel@conarinagroup.com)



Frequent and less invasive cleaning methods also increase the longevity of antifouling coatings applied to ship hulls, further reducing hull cleaning time. It also reduces biofouling, the process by which invasive aquatic species are introduced into new environments.

REFERENCES:

- Hull cleaning

ATTACHMENTS: No

Kindest Regards,  
CONARINA Technical Office

**CONARINA Head Office**

6505 Blue Lagoon Dr. Suite 455  
Miami, Fl., 33126  
Tel: 1 (786) 558 5288,  
Fax: 1 (786) 325 0200,  
[Joel@conarinagroup.com](mailto:Joel@conarinagroup.com)