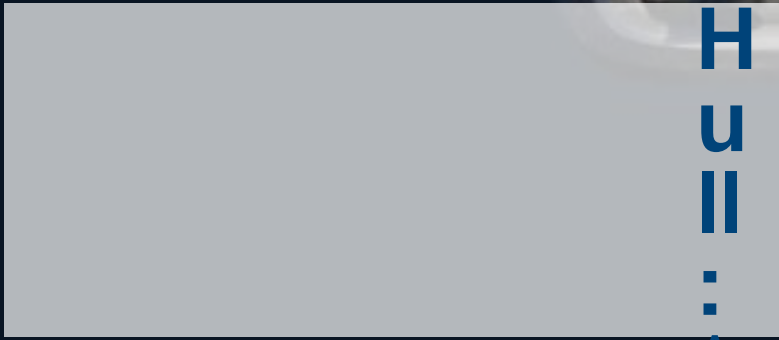


G
A
C
E
n
v
i
r
o
n
H
u
l
:
A

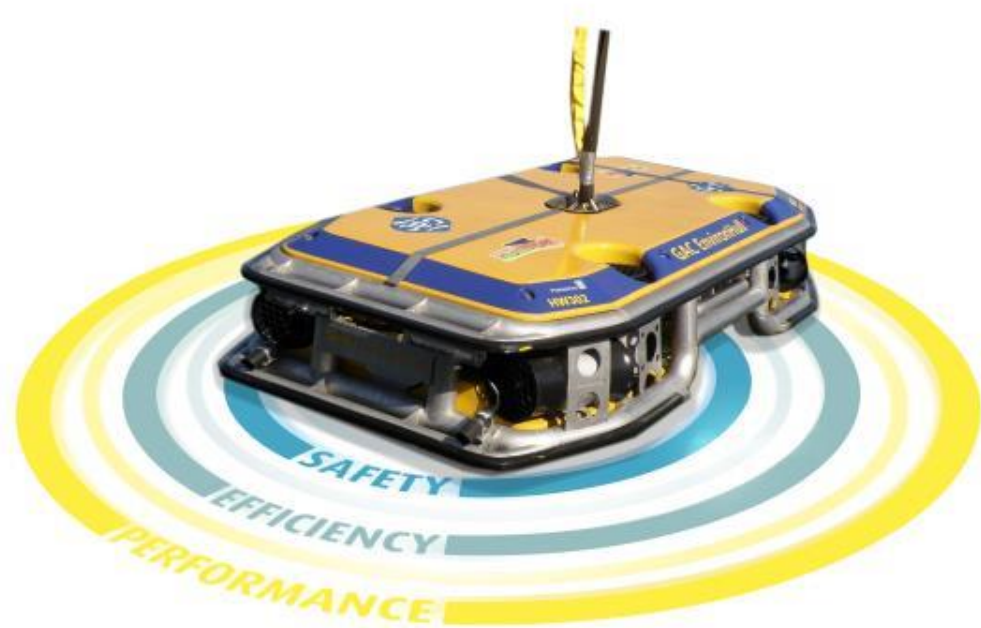




Revolutionary underwater
hull cleaning

What is the HullWiper?

- Diver-free and environmentally friendly
- Remotely Operated Vehicle (ROV) equipped with water jets, designed to clean up to 2,000 sqm/h
- Utilises salt water under high pressure as the cleaning medium
- Collects pollutants from the cleaning and disposes of in an environmentally-friendly manner
- Can clean ships while taking on bunker fuels or loading/discharging cargo, saving valuable time
- Granted permission to clean vessels in port



Cost effective & environmentally friendly hull cleaning technology

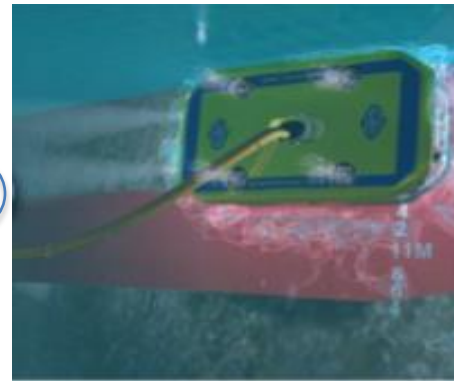
How does the HullWiper work?



While a vessel is in port, a GAC EnvironHull support vessel comes either alongside or to berth. ROV Supervisor gives the vessel staff a safety brief. Team sets up the HullWiper ROV to start the underwater cleaning process.



ROV operator on-board support vessel guides ROV HullWiper to approach ship and once in position engages cleaning mechanism.



Water jet pressure is adjusted to remove fouling without compromising the vessel's anti-fouling coating. HullWiper cleans at an average speed of 1000-2,000 m²/hour, completing a full hull in considerably less time than divers as the ROV has no night time restrictions.



A clean (smooth) hull improves vessel speed and produces big savings on fuel



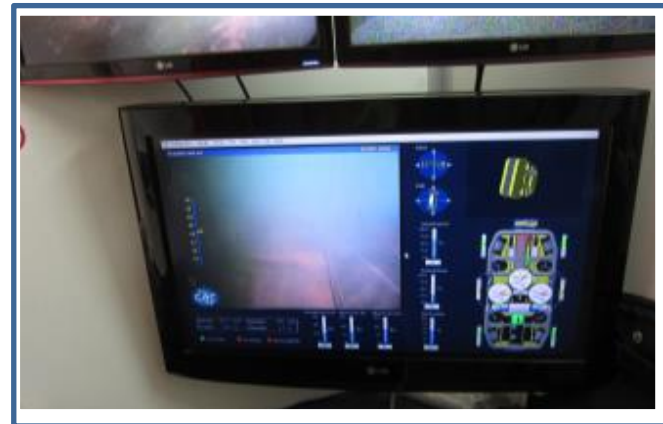
Residues and harmful marine organisms are then disposed of ashore in an accepted and environmentally approved manner, with all details recorded in a waste material log.



Removed fouling is captured on-board the HullWiper's fouling retrieval units and only clean water is released back into sea. Process is monitored during the whole cleaning operation.

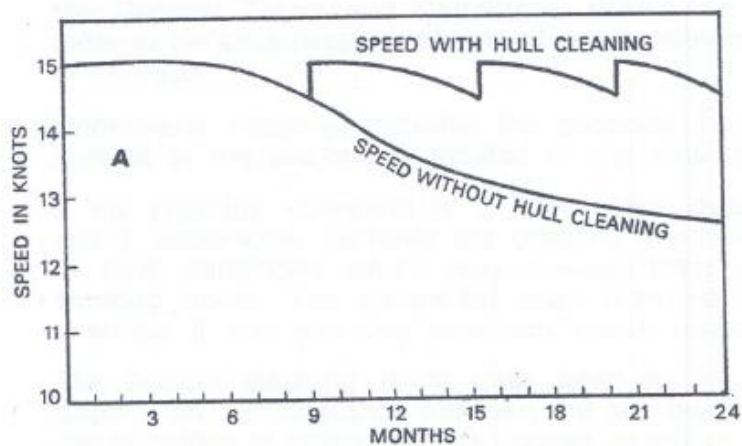


The HullWiper in action

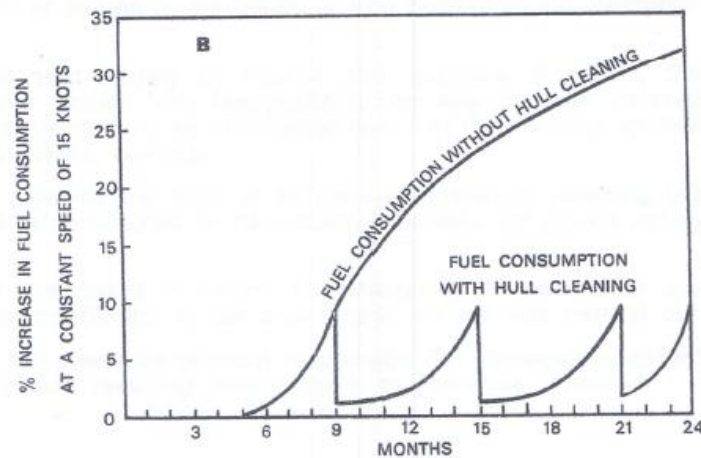


Fuel consumption

At constant fuel consumption



At constant speed



The HullWiper advantage

Saving time, money and environment

Safety & environment

- No divers in the water means no risk of injuries or casualties
- Organic grown retrieval system with all waste disposed with environmentally approved methods

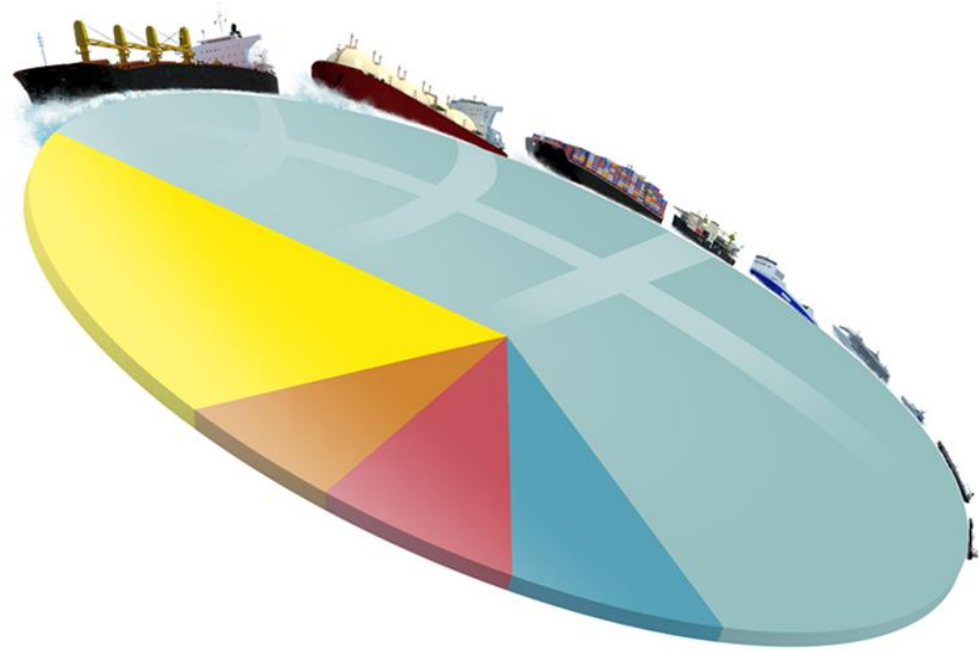
Hullwiper vs brushes

- Brushes remove significantly more anti-fouling coating than HullWiper and this method doesn't create coating cavities
- Re-growth of organic material is generally 2-3 times slower with HullWiper cleaning as opposed to brushes
- HullWiper cleaning is faster than conventional cleaning with brushes and works 24/7 so no delays due to schedules
- HullWiper cleans ships alongside while loading/discharging cargo so no need for deviation or down time for a hull cleaning location



Online fuel savings calculator

- Compares bunker costs for clean hull and fouled hull
- Compares HullWiper and traditional hull cleaning methods
- Suitable for all vessel types
- Cost saving calculations
- Factors hidden costs of divers using brushes or other abrasives
- Comparison results generated immediately
- Visit <http://gacc.vironhull.com/>



Strategically located



- In operation
- Operating soon

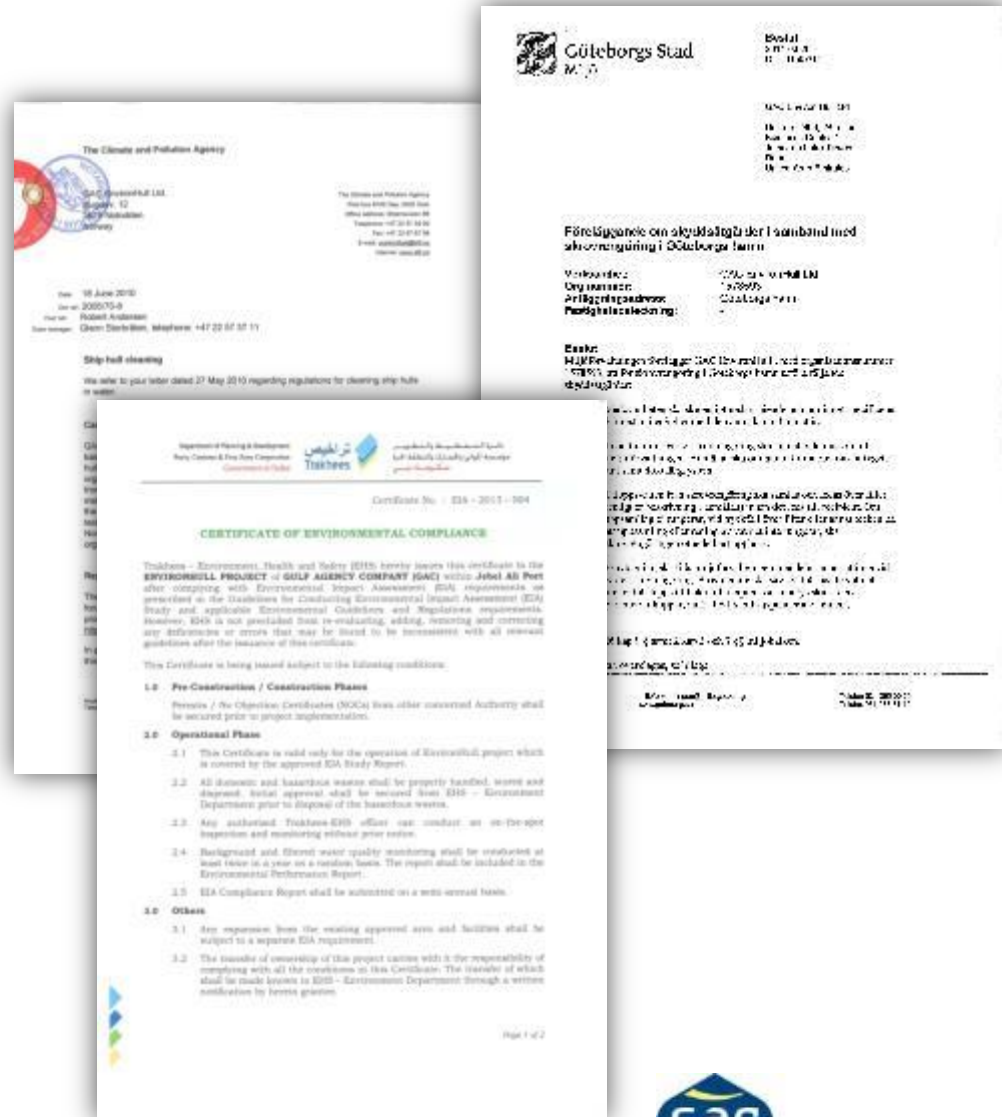


Delivering your strategy.

Acknowledgment (1)

HullWiper's innovative features are carefully tested and certified by various environmental authorities and agencies worldwide:

- UK Environmental agency
- Climate & Pollution agency - Norway
- Gothenburg Authorities – Sweden
- Government of Dubai Port environmental health & safety – UAE
- Sultanate of Oman Environmental Ministry
- Port of Valencia
- Ministry of Transport in the Netherlands
- Port of Rotterdam



Acknowledgment (2)

HullWiper's ability to clean without harming to ship's coating is confirmed by many international ship painting companies:

- International Paint (a brand of AkzoNobel's Marine & Protective Coatings)
- Sigma Coatings (a brand of PPG Protective & Marine Coatings)
- The Jotun Group



Award winning technology



Maritime Innovation
Award 2015



The Hutchison Ports
Environment
Award 2016



Clean Shipping
Award 2016



Innovation
Technology Award
2015



Technical Innovation
Award 2015



Environmental
Protection
Award (Marine) 2015
Innovative Technology
Award 2014

Non-stop support

GAC EnvironHull

GAC/Holland Diving Rotterdam

Tel: +31 10 4352222

Mob: +31 653221091

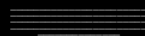
mark.vandenakker@gac.com

GAC EnvironHull, Dubai

Tel: +971 4 435 3296

environhull@gac.com





Th
an
k
yo
u!